MONTHLY WEATHER REVIEW.

JULY, 1894.

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INTRODUCTION.

The REVIEW for July, 1894, is based on reports from 3,299 stations occupied by regular and voluntary observers. These reports are classified as follows: 148 reports from Weather Bureau stations; 41 reports from U. S. Army post surgeons; 2,248 monthly reports from State weather service and voluntary observers; 34 reports from Canadian stations; 223 reports through the Southern Pacific Railway Company; 509 marine reports through the co-operation of the Hydrographic Office, Navy Department, and "New York Herald Weather Service;" monthly reports from 33 U. S. Life-Saving stations; 63 reports from navigators on the Great Lakes; monthly reports from local services established in all States and Territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

The WEATHER REVIEW for this month has been prepared under the general editorial supervision of Prof. Cleveland Abbe. The statistical tables are furnished by the Division of Records and Meteorological Data, in charge of Mr. A. J. Henry, acting chief of that division.

CHARACTERISTICS OF THE WEATHER FOR JULY, 1894.

The most prominent meteorological features of the month of July were the absence of well-developed cyclonic storms in the United States and the general prevalence of high barometric pressure with variable winds and clear, hot weather over the interior of the country; the special hot winds of the 25–28th from Kansas to Minnesota and Wisconsin; the general deficiency of rain throughout the northern half of the United States, constituting the first part of a memorable drought and attended by numerous forest and prairie fires in July and the succeeding months; the general absence of tornadoes; the severe thunderstorms; the remarkably high maximum temperatures; the heavy rains of the south Atlantic and east Gulf States and the very low percentage of sunshine for those regions; the low water in the upper Ohio and Mississippi rivers.

ATMOSPHERIC PRESSURE.

[*In inches and hundredths.*]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers not reduced to standard gravity and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), during July, 1894, is shown by isobars on Chart II. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border. This Chart also gives the so-called resultant wind directions for this month, based on the data given in Table IX of this REVIEW.

During the current month of July the mean pressures at sea level have been high, 30.10, off the coast of the south Atlantic States and highest off the north Pacific coast, 30.13, at Tatoosh Island. The regions of lowest pressure were in southern Arizona, 29.82, at Yuma, and nearly as low in Manitoba and Saskatchewan.

The normal distribution of atmospheric pressure and normal resultant wind direction for the month of July were approximately shown on Chart V of the REVIEW for July, 1893, as computed by Prof. H. A. Hazen, and are not now reproduced. As compared with the normal for July, the mean pressure for the current month was above the normal throughout the United States, except a deficit of 0.01 at Pensacola and 0.03 at Roseburg. The principal excesses were: 0.05 or 0.06 in Nova Scotia, on the New Jersey and Carolina coasts, Key West, Nashville, Cairo, Lake Ontario, and from Missouri northwestward to Nevada, Idaho, and Oregon; this latter region constituted a decided ridge of high pressure, in which excesses of from 0.06 to 0.13 occurred, and divided the low pressure of the Gulf of California from that of British America.

As compared with the preceding month of June the pressures reduced to sea level show no appreciable change throughout the Atlantic States, Nova Scotia, and New Brunswick. There was a decided rise in the region of the ridge above mentioned, viz, from Kansas and New Mexico to Oregon, British Columbia, Saskatchewan, and Manitoba, over all of which region the rise was over 0.05, amounting in the maximum to 0.15 in Colorado, 0.13 in Wyoming, and 0.12 in Assiniboia.

DIURNAL VARIATIONS.

The systematic periodic diurnal variations of pressure are shown by the hourly means given in Table VI.

AREAS OF HIGH AND LOW PRESSURE.

The following sections give some details as to the phe-

nomena attending the individual areas of high and low pressure. The storm warnings officially issued either by the Weather Bureau through the general forecast official at Washington, or by the respective local forecast officials, are enumerated in connection with the respective areas of disturbance.

MOVEMENTS OF CENTERS.

The following table shows the date and location of the center at the beginning and ending of each area of high or low pressure that has appeared on the U. S. Weather Maps during the month, together with the average daily and hourly velocities. The monthly averages will differ according as we consider each path as a distinct unit, or give equal weight to each day of observation; in the first case the monthly average is taken by paths, in the latter case by days.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	43	114	14, a. m.	31	80	3,700	13.0	285	11.9
II	10, a. m.	47	124	15, a. m.	38	94	1,800	5.0	360	15.0
III	16, a. m.	44	75	18, a. m.	41	70	450	2.0	225	9.4
IV	17, a. m.	46	125	24, a. m.	46	57	4,100	7.0	586	24.4
V	25, a. m.	46	124	29, a. m.	38	101	1,700	4.0	425	17.7
Sums							11,750	31.0	1,881	
Mean of 5 paths									376	15.7
Mean of 31 days									377	15.7
Low areas.										
I										
II	1, a. m.	39	121	1, p. m.	42	123	200	0.5		
III	1, p. m.	28	88	2, p. m.	32	89	200	1.0	200	8.3
IV	2, p. m.	50	88	6, a. m.	50	57	1,400	3.5	400	16.7
V	3, a. m.	37	103	4, a. m.	37	97	300	1.0	300	12.5
VI	6, a. m.	53	116	12, a. m.	46	88	2,300	6.0	383	16.0
VII	5, p. m.	46	91	7, a. m.	48	67	1,200	1.5	800	33.3
VIII	8, a. m.	31	96	10, p. m.	31	80	1,000	2.5	400	16.7
IX	12, a. m.	51	69	14, a. m.	49	55	700	2.0	350	14.6
X	14, p. m.	52	115	23, a. m.	35	74	3,500	8.5	412	17.2
XI	19, p. m.	52	117	25, p. m.	52	60	2,900	6.0	483	20.1
XII	23, p. m.	53	120	27, a. m.	43	96	1,600	3.5	457	19.0
XIII	28, p. m.	51	111	31, p. m.	46	94	900	3.0	300	12.5
Sums							16,200	39.0	4,485	
Mean of 11 paths									408	17.0
Mean of 38.5 days									416	17.3

HIGH AREAS.

During July the so-called tropical areas of high pressure reach their extreme northern positions, and the general circulation of the atmosphere in the Northern Hemisphere is so much affected by the solar heat that the descending currents of the upper atmosphere, in so far as they flow toward the North Pole, reach the earth's surface far to the north. The circulation over the area covered by the Daily Weather Map of the United States is now vertical rather than horizontal, and this does not cause the great barometric variations from the areas of high to the areas of low pressure that occur in winter time, when the sun is far to the south. In accordance with general experience the current month has shown many areas of slight barometric elevations and depressions, but none of unusual intensity. So far as can be judged by the limited region covered by our daily maps, both high and low areas have an eastward movement from the Pacific to the Atlantic. The first portion of their path is toward the southeast, the latter portion toward the northeast, as though they were at first controlled by an anticyclonic movement around the high area of the Pacific Ocean and afterwards by the anticyclonic movement around the high area of the Atlantic Ocean, or as if they were wholly controlled by a cyclonic movement about a general depression central over British America. The low areas frequently appear on our maps almost simultaneously in British Columbia and Arizona. The northern area moves eastward more rapidly than the southern, and a high area then appears moving southeastward over the Pacific States and Rocky Mountain plateau, until finally its northerly winds push south toward Texas; as these winds lift up the air of the warmer southerly winds that they encounter, there are produced local rains and sometimes local thunderstorms and tornadoes in long belts, representing a series of individual disturbances caused by the uplifted moisture. Again, after the northern area of low pressure has moved eastward to the St. Lawrence Valley, an area of high pressure is apt to move southward apparently from the region of Hudson Bay, bringing cold weather to the Middle States and New England.

Finally, in a few cases a low pressure has developed in the Gulf States apparently in sympathy with, if not an offshoot from, the low pressure of the Gulf of California; as this moves eastward an area of high pressure is apt to encroach upon the Middle States and New England from the Atlantic Ocean, bringing cool northeast winds to some portion of the Atlantic coast, and out of this condition severe storms may develop in later months of the year, but are not so likely to occur in July. Although the areas of high and low pressure, when they first appear on our Pacific coast, oftentimes appear to have the character of simple waves of pressure due to pressure changes in the upper atmosphere, yet their subsequent motions show that they have a mixed character, combining the wave of pressure with the actual movement of translation of masses of air on a large scale, and that the vertical component of motion is quite as important as the horizontal movement.

I.—On the 1st, a. m., an area of high pressure extended from British Columbia southeast to Texas, its center being apparently in western Montana; the northern portion moved more rapidly eastward, with rising barometer and falling temperature; on the 3d, a. m., no center of highest pressure can be located, but the barometer continued above the normal for several days on the north Pacific coast, Rocky Mountain plateau, in Assiniboia, and Manitoba. By the 5th, a. m., pressure had fallen, leaving the central highest in Kansas, and by the 6th, a. m., an inflow from the north over Manitoba had occurred. On the 7th, a. m., pressure was highest in Iowa, and by the 8th, a. m., in the Ohio Valley; 9th, a. m., in Ohio; 10th, a. m.. in Pennsylvania; 11th, a. m., in northern Georgia; 12th and 13th, a. m., in South Carolina; after which this area merged into the permanent high off the south Atlantic coast.

II.—On the 6th, a. m., pressure rose on the coasts of Oregon and Washington and continued high until the 8th, a. m., while low No. VI moved southeastward into Alberta. By the 10th, a. m., this low area having passed entirely east of the Rocky Mountains the high pressure, with cool northerly winds, prevailed in Washington and Oregon, and by the 12th, a. m., the highest pressure had passed over the Rocky Mountains into Alberta. At this time high area No. I was central in the south Atlantic States and a low pressure, No. IX, was retreating northeastward over Lake Superior, leaving a slight depression extending from that region southwest to Colorado. This depression was rapidly filled up by the inflow of air from the northwest, and the center of high No. II moved southeastward, reaching South Dakota by the 13th, a. m., while the center of high No. I remained nearly stationary. Thus, a ridge of high pressure was formed from British Columbia to Florida, which, on the 14th, a. m., was central in Nebraska and which divided the low pressure in Ontario and Quebec from that on the Pacific coast. The differences of pressure were but one or two tenths of an inch and the gradients exceedingly slight; such areas of high pressure are apparently due to the general circulation of the atmosphere, and especially to the vertical component of the descending

air which is so slight as to allow of the formation of very low temperatures in the atmosphere at a comparatively small distance above the earth's surface.

On the 6th and 7th of the current month, a similar area of high pressure over Europe was explored by the ascent of the small balloon named the "Cirrus," from Berlin, and temperatures of —50° to —55° C. (—58° to —67° F.) were observed at an altitude of 14,000 to 17,000 meters (45,932 to 55,774 feet). These temperatures show that the air was colder at great altitudes than is required by the laws of hydrostatic equilibrium and that, therefore, a condition of unstable equilibrium existed, such that during the nighttime and early morning hours the descending air continually retained its tendency to descend, since the dynamic warming due to compression was counterbalanced by the cooling due to radiation and mixture. The irregularity of the horizontal movement of the air above the central portion of the region of high pressure and the simultaneous presence of layers moving in several directions are shown not only by the movements of the balloon just referred to, but by the changes in the shapes of the contours of the isobars in the region of the central high pressure. In the case of our present high area No. II, on the morning of July 14, the isobar of 30.20 extended from central Missouri and Iowa westward to northern Colorado, but by July 15th, a. m., it was restricted to the former States, the central highest pressure being in Missouri. By the 16th, a. m., this area of high pressure had united with high No. I, while areas of low pressure had developed in Arizona and in Alberta.

III.—The pressure increased on the Atlantic coast from the 15th to the 16th, and on the latter date a small elevation was central in northern New York, having apparently moved southwestward over Labrador and Newfoundland in the rear of low No. IX. By the 17th, a. m., the highest pressure was off Cape Cod, but this was due to the westward movement of isobars from the Atlantic. Pressure continued high off the middle Atlantic coast during the 18th, with northeasterly winds as far south as South Carolina, and by the 19th, a. m., pressure was highest in the south Atlantic and Gulf States and so continued until the 20th.

IV.—On the 16th, a. m., pressure was high on the coast of Oregon, and by the 18th, a. m., an area of high pressure had extended east and south over the Rocky Mountain plateau region, being central in northern Idaho. By the 19th, a. m., this ridge had extended southward to New Mexico and northward to Saskatchewan and beyond, the highest pressures being apparently in Assiniboia and Wyoming, respectively. On the 20th, a. m., this ridge extended from Colorado to Minnesota, and on the 21st, a. m., from New Mexico to Lake Superior and beyond, probably into northern Labrador, the center being apparently in Wisconsin. By the 22d, a. m., there had occurred a slight fall in pressure in the central portion of this ridge, which was now over Lake Michigan; but the general dimensions of the region covered by the isobar of 30.00 had correspondingly increased, so that the Weather Map presents, on the 21st and 22d, two troughs of low pressure, No. X on the Atlantic and No. XI in Manitoba, separated by this great ridge of high pressure. This configuration illustrates the general principle that the prime mover in the formation of high and low areas is the presence of the high, whose descending air flows outward to supply the low areas; in this outward flow the air that moves southerly is dense relatively to that which it meets, and both by mixing it and by uplifting it brings about the formation of cloud and rain, and at first local storms, but afterwards a general cyclonic circulation; the air that flows northward is generally warmer than that which it meets and rises above it, but eventually cools and feeds other low areas. In such cases the so-called storm center with cyclonic winds is a development from a trough or other area of low pressure between ridges of high pressure; a special flow of cold, dry air into some part of this trough, usually the western end, starts the conversion of the trough with its opposing winds into the oval depression with its circulating winds. By the 23d, a. m., pressure had generally fallen over the United States, and the area of highest pressure was confined to the lower St. Lawrence. By the 24th, a. m., it had merged into the high pressure that had descended over Labrador and Newfoundland, so that pressure was highest at Cape Breton and St. Johns.

V.—From the 23d to the 26th pressure rose off the coast of Oregon and Washington apparently in consequence of the southeasterly movement of an area of high pressure banking up against the Rocky Mountains from Idaho to Alaska; during these days pressure was falling at Yuma as also, apparently, in Alberta and Stikine, forming low pressure area No. XII. By the 27th, a. m., pressure was apparently highest in western Washington, after which it rapidly fell and, by the 28th, a. m., was highest in Wyoming. During the 24th to the 27th pressure also rose on the Atlantic coast evidently because of the westward movement of the Atlantic area of high pressure in response to the development of the extensive low pressure No. XII. By the morning of the 28th this low pressure had begun to disappear; it had, in fact, formed a trough trending northeast and southwest between these two areas of high pressure and the inflow descending into it had been sufficiently rapid to bring the highest temperatures of the month to a number of stations on the 25th, 26th and 27th in Colorado, Kansas, Missouri, Illinois, Indiana, and northward to Lake Superior; these high temperatures, with clear, dry weather, showed that conditions were not favorable to the perpetuation of a low area, and by the 29th, a. m., the high area No. V had overspread the region where the trough of low pressure had existed the day before, and both the high and low areas had lost their characteristic pressures.

VI.—On the 30th pressure was again rising in Oregon and Washington while low No. XIII was passing over Alberta and Assiniboia. Pressure was highest off the coast of Washington on the 31st, a. m., but the further history of this area belongs to the month of August.

VII.—On the 30th, a. m., pressure was rising in the Lake region in the rear of an area of low pressure that was over Labrador and Newfoundland, but which was too far beyond the limits of our stations to be included in the previous list of low pressures. By the 31st, a. m., an area of high pressure was apparently central between Lake Superior and James Bay, but it rapidly spread out and disappeared over the Middle States.

LOW AREAS.

The month of July has been marked by the appearance of a number of ill-defined and minor areas of low pressure in addition to a few that developed into important storms. It is believed that all depressions that are marked "Low" on the Daily Weather Map have been included in the following list:

I.—This number is given to the low area of Arizona and the Gulf of California, which has, as usual for July, been the prominent feature of this month. The pressure at Yuma fell slowly from the 1st to the 2d, and remained low during the 5th, 6th, and 7th, while the corresponding low, No. VI, in British Columbia developed and started eastward. After this pressure rose at Yuma, but was again falling on the 11th, reaching a minimum on the 13th, at which time low No. X was developing in British Columbia. The minimum occurred on the 16th, p. m., when the low area stretched over Arizona and Idaho into northern California, while low No. X was central in Manitoba and Assiniboia. On the 20th pressure was again falling at Yuma, reaching a minimum on the 21st, p. m., while low No. XI passed over British Columbia on the 19th into Saskatchewan on the 21st. On the 25th pressure was falling in Yuma, while low No. XII was central in Saskatch-

ewan. The lowest pressure of the month at Yuma occurred on the 26th, p. m., at which time an extensive depression extended thence northeastward into British America, with three centers respectively in Arizona, South Dakota, and Manitoba. On the 30th pressure was again falling in Yuma, while low No. XIII was central in Assiniboia. The minimum occurred on the 31st, p. m., at which time low No. XIII was central in Minnesota.

A general review of the month shows that the low area of Arizona and the Gulf of California develops in connection with a low area to the northward. The latter in a few days moves eastward, while the former rarely sends off an independent low area, but, so far as can be seen by our daily maps, subsides by filling up or withdrawing to the southward and only occasionally has some influence in developing a low on the border of Texas; even in this latter case its influence is usually indirect, since the first step is the flow of air over northern Texas and New Mexico from the north and east toward the Gulf of California. The origin of the trough of low pressure whose northern end so often stretches up over Arizona seems to consist in the fact that when the area of high pressure over the Pacific Ocean retires westward, and that over the Atlantic retires eastward, the intervening low pressure extends north and south between Alaska and the Pacific coast of Mexico, where it joins the equatorial belt of low pressure.

II.—This appeared on the 1st, a. m., in northern California, and by the 1st, p. m., stretched as a long oval into northern Oregon, after which it disappeared.

III.—Appeared on the 1st, p. m., apparently central near the southeast point of Louisiana and moved slowly northward, with high winds and heavy rains, disappearing on the 2d, p. m., in central Mississippi.

IV.—This was developing on the 1st, a. m., north of Manitoba and was probably central on the 1st, p. m., in the eastern portion of that State. It moved southeastward, and on the 2d, p. m., was near Lake Superior, and on the 3d, p. m., near the mouth of the St. Lawrence. It disappeared on the 5th, p. m., over the Straits of Belle Isle.

V.—Appeared on the 3d, a. m., in southeastern Colorado, and moving eastward disappeared on the 4th, a. m., in southeastern Kansas. Heavy rains attended this slight depression, evidently due to the inflow of cooler air from the high area immediately north of it.

VI.—On the 5th, p. m., an area of low pressure appeared in Alberta which, by the 6th, p. m., had moved southeastward until it was central in northwest Assiniboia. This depression continued developing in this region, extending its influence to the southward, but by the 8th, p. m., it had begun to fill up without much eastward motion. During the 9th and 10th the depression spread over a large area and then again gave rise to a trough of low pressure, but on the 11th, p. m., it extended northeast and southwest on the borders of Minnesota and the Dakotas, with corresponding high winds and severe local storms. The depression now began to die away; it was central on the 12th, a. m., in upper Michigan, after which it disappeared by moving northeastward beyond our stations, while low No. IX developed in Labrador.

In connection with low area No. VI the following signals were ordered: 11th, 10 p. m., storm southwest for Lake Michigan, Duluth, and Marquette; 12th, noon, storm southwest, Sault Ste. Marie and Lake Huron; 12th, 9.53 p. m., storm northwest, lakes Michigan, Superior, and Huron.

VII.—On the 4th pressure fell rather rapidly in Alberta and Saskatchewan, but as the Canadian methods of reducing the barometer to sea level differ from those of the United States, it is probable that a portion of this fall in the reduced pressures is only apparent and due to the rise of local temperature at the earth's surface. In general, the temperature of the mass of atmosphere above us has but a very slight diurnal period as compared with that of the air at the surface of the ground, and this law was recognized by Prof. Ferrel in his Meteorological Researches No. III in 1881, and in the tables of reduction to sea level that he subsequently prepared for the use of the Signal Service. In these tables the average temperature of the air is supposed to change from day to day as the irregular or non-periodic changes of temperature pass over the country, but the regular periodic changes at the surface of the earth are partially eliminated. If we compare the map of the 4th, p. m., with that of the 5th, p. m., it would seem that, while low No. VI remained in Alberta and low No. IV was at the mouth of the St. Lawrence, a third depression started near Lake Superior on the 5th; during that day strong northerly winds extended over Manitoba and southward, meeting warm southerly winds in Minnesota. In this manner low area No. VII developed, which was central in Wisconsin on the 5th, p. m., and moved eastward through Upper Michigan into Ontario and the St. Lawrence Valley, where it disappeared on the 7th.

VIII.—During the 8th a slight depression, with rain, developed over the eastern Gulf and south Atlantic States, while high area No. I extended southward, with northeasterly winds, into this region. This low pressure may be considered as having been maintained by the latent heat of condensation and the action of the sun on the clouds. The area of cloud and rain moved slowly eastward during the 9th and 10th; the barometric depression at the center of the trough did not exceed one-tenth of an inch; the rainfall increased slightly as the disturbance passed eastward, varying from 2 or 3 inches in Arkansas and Louisiana to 3, 4, and 5 inches in Georgia and South Carolina. By the 10th, p. m., the disturbance was off the south Atlantic coast, and northeast winds, with fair weather, had generally succeeded it. No general cyclonic whirl was developed out of this disturbance, but local storms were numerous.

IX.—This appeared on the 12th, a. m., at the mouth of the St. Lawrence, and was evidently within the general depression, of which low No. VI represented the southwest extremity. Between the 11th, p. m., and 12th, a. m., pressure fell both over Lake Superior and the St. Lawrence Valley and became lowest north of the St. Lawrence. An area of low pressure seems to have moved eastward over southern Labrador and northern Newfoundland, passing eastward from the latter on the 14th, a. m.

X.—This depression developed in British Columbia and Alberta on the 14th. By the 15th, p. m., it may be located in southwestern Saskatchewan and by the 16th, p. m., in southern Assiniboia. Its exact location is, as before explained, rendered difficult by the uncertainties of reduction of high stations to sea level. By the 17th, a. m., this depression had extended southward into Colorado, while the center was in southern Manitoba, and this position was maintained until the 18th, p. m., by which time high area No. IV had moved southeastward into the central Rocky Mountain plateau region and the area of low pressure became converted into a trough of opposing northerly and southerly winds, with rain, extending over Colorado, Nebraska, South Dakota, and Minnesota. In this manner the southern portion of this depression was filled up and disappeared, and the northern portion moved slowly eastward through Canada. On the 20th this portion extended southward over New England, followed by rapidly rising pressure on its western side, and a belt of northerly winds prevailed from the Lake region southward to Louisiana in advance of the ridge of high pressure No. IV. Low area No. X moved southward during the 21st and 22d along the middle Atlantic coast and disappeared on the 23d, a. m., off Cape Hatteras.

In connection with low area No. X the following signals

were ordered: 22d, 9.50 a. m., storm northeast from Breakwater to Woods Holl section.

XI.—On the 18th pressure fell in Washington and British Columbia in connection with the trough stretching southward to the Gulf of California; this was followed by a rise on the 19th, while the lowest pressure developed in Alberta. By the 20th, p. m., low pressure extended from Alberta north to Athabasca, south to Montana, and east over Assiniboia, and by the 21st, p. m., was central in Manitoba. During the 22d, while this depression was extending eastward, the barometer again fell in British Columbia and the map of the 23d, p. m., shows two depressions, Nos. XI and XII, central, respectively, in Manitoba and Alberta. Low No. XI kept far to the north of our stations and disappeared on the 25th, p. m., in Labrador.

XII.—On the 23d, a. m., pressure was falling in British Columbia and the map of the 23d, p. m., shows that a depression must have existed in that region which, on the 24th, p. m., was central in Alberta. During the 25th, this depression stretched rapidly southward along the entire eastern Rocky Mountain slope and the Missouri Valley, and on the 25th, p. m., was central in Saskatchewan, while high pressure (30.20), No. V, was off the coast of Oregon and a similar high pressure was off the Carolina coast. By the 26th, a. m., this general depression had divided into three cyclonic regions, respectively, in Manitoba, South Dakota, and Arizona, of which the latter was the least perfectly developed and has already been mentioned under low No. I. The principal depression in South Dakota was attended with high winds which were remarkably hot from Texas to Illinois, Wisconsin, and Minnesota, as also in Arizona; these hot winds continued during the 27th, but diminished somewhat on the 28th and 29th; the sky was generally clear and the air dry, only a few local rains being reported; the high temperature must be attributed principally to the dynamic heating of the air that flowed down and into the central depression from the high area over the Atlantic States and ocean to the eastward. From the 26th, a. m., to the 28th, a. m., the central low pressure gradually filled up and, after stretching as a trough from New Mexico to Lake Superior on the 27th, it had disappeared by the 28th, leaving areas of low pressure in Arizona, Assiniboia, and at the mouth of the St. Lawrence as remnants of the general depression that had previously existed.

In connection with low area No. XII the following signals were ordered: 25th, 10 p. m., storm southeast, lakes Superior and Michigan; 26th, 10 a. m., storm southeast, Sault Ste. Marie and Lake Huron; 26th, 10 p. m., storm southeast, continue on lakes Superior and Michigan.

XIII.—This number is given to the depression in Assiniboia just referred to as a remnant of low No. XII. By the 29th, p. m., pressure had generally fallen in Alberta and Assiniboia, and the depression continued to develop during the 30th and 31st moving, at the same time, slowly southeastward while the barometer also fell at Yuma, so that on the 31st, p. m., depressions were central in Minnesota and Arizona, but without well-marked cyclonic winds.

NORTH ATLANTIC METEOROLOGY.

[*Pressure in inches and millimeters; wind-force by Beaufort scale.*]

NORMAL CONDITIONS.

The normal barometric pressure for July over the North Atlantic Ocean, as deduced from international simultaneous meteorological observations taken at Greenwich noon and not reduced to standard gravity, is highest, 30.25 (769), over an oval extending between N. 28° and N. 40° and W. 21° and W. 34°. A similar area of high pressure prevails on the Pacific Ocean between N. 40° and N. 20° and west of W. 135°; from this Pacific area a narrow prolongation extends northeastward to Vancouver Island, giving high pressures to the coast of Oregon and British Columbia. The area of low pressure characteristic of the North Atlantic during the winter months moves northward or northeastward during May and June, while the corresponding low area characteristic of Bering Sea moves northwestward during those months, so that the normal average for July shows these to have combined in one region of low pressure covering the Arctic Ocean and closely adjoining the Asiatic and Himalayan low pressures.

As compared with June, the normal pressures for July are higher throughout the United States, but lower throughout the British provinces, Greenland, Alaska, and the Arctic regions and nearly all of Asia; the pressures are higher in the Aleutian Islands, the United States, Mexico, and the northern central portion of Siberia. During this month the diminution of pressure that has been going on in the Arctic regions ceases and soon becomes converted into a rise, indicating a change from summer to winter conditions.

The normal zone of maximum frequency of tracks of centers of low pressure during the month of July passes from the southern part of the China Sea, near Borneo, northeastward along the coast of China and Corea over the Japan Sea, the Island of Jesso, south of Kamchatka into Bering Sea, thence east and southeast into British Columbia and eastward over Lake Superior and Newfoundland, thence east-northeast to northern Norway and Sweden and southeast into the interior of Russia. These storm tracks thus circulate along the isobars of 29.80 to 29.90 that surround the low pressure of Asia and the Arctic regions; they represent the paths pursued by cyclonic eddies of air overflowing from the so-called areas of high pressure into the greatly distorted polar depression of the Northern Hemisphere. The number of such cyclonic whirls is probably not much smaller in July than in December, but the severity of the surface winds is very generally less, and therefore, the number of recorded storms is less. The greatest so-called storm frequency for the United States occurs in the winter months, but the chart showing the actual number of storm tracks passing over each square degree annually shows that a region of maximum frequency of from 40 to 50 storm centers per 5° square per ten years always exists, and that local variations in storm frequency depend upon comparatively slight changes in the location of the maximum region. Therefore, in so far as the existence and movement of cyclonic centers are an index to the general circulation of the atmosphere we should conclude that this is nearly uniform from month to month.

The normal rate of progress of storm centers during July is 25 miles per hour in the United States; 19 in the North Atlantic Ocean; 17 in Europe; 20 in the China and Japan seas; 23 in Bering Sea; the average for storms moving easterly is 21 miles per hour; the average of storms near the tropics moving westerly is given as 22 miles per hour.

NORTH ATLANTIC STORMS.

The following paragraphs give some account of the areas of low pressure and strong winds on the North Atlantic Ocean during July, 1894. Daily charts are compiled at the Weather Bureau showing the atmospheric conditions over the United States, Europe, and the Atlantic Ocean, as nearly as practicable at Greenwich noon, and afford a basis for approximating

the locations and paths of the more important areas of high and low pressure.

A. This was a continuation of low area *F* from the North Atlantic series for June. It was central on the 1st at N. 55°, W. 27°, while an area of high pressure prevailed over Europe. It moved slowly northward and then northeast, as a slight depression, without severe winds, and is not recognizable, owing to the want of data, after this date.

B. This was apparently a continuation of No. XX of the U. S. series for June, being central in Labrador on the 1st. Having passed eastward it seems to have joined the preceding depression, *A*, and the two together, on July 3 and 4, covered the area between Greenland and the Faroe Islands. By the 5th, noon, this had contracted to a small trough, central at N. 58°, W. 28°, after which it disappeared from our maps.

C. This was a continuation of No. IV of the U. S. series for July, which passed over Labrador on the 4th and was central on the northeast coast of Labrador on the 6th, noon. This depression appears to have passed over the southern end of Greenland, and may be identical with that which, on the 8th, was central south of Iceland, in N. 62°, W. 15°. During these days an area of high pressure continued over Europe, stretching from Italy to Norway, with gentle, variable surface winds. The reports from the Wellman Expedition show that, at this time, unusual cold weather was experienced in Spitbergen, and the balloon ascensions made for meteorological purposes at Berlin, July 6 and 7, show that a layer of very cold air (temperature —50° to —55° C., —58° to —67° F., at an altitude of from 14,000 to 17,000 meters, 45,932 to 55,774 feet) was slowly descending upon Europe. Evidently there was going on at this time an outflow of cold air from the upper regions of the tropical Atlantic northeastward over Europe corresponding to the similar flow from the tropical Pacific northeastward into British America. From the 8th to the 10th the low pressure, *C*, stretched southeastward and became a trough extending over Ireland and southwestern England, after which it returned to its oval shape and on the 12th was central at N. 60°, E. 3°; it then again stretched northward and on the 15th passed eastward into Norway and Sweden, where it was central on the 16th, after which it was joined by the following area, *D*.

D. This depression appeared in Alberta and Montana on the 9th as No. VI of the U. S. series; it passed over Lake Superior on the 12th, Labrador on the 13th, and reappeared on the 14th, noon, off the coast of Labrador, at N. 53°, W. 49°. Its center was approximately N. 56°, W. 35° on the 15th, N. 60°, W. 15° on the 16th, and N. 51°, W. 12° on the 17th. After this areas *C* and *D* merged into each other and, on the 18th, covered southern Norway, being central at N. 62°, E. 8°. During the 19th, 20th, and 21st pressure remained low in Scandinavia and Finland, and several minor centers of low pressure developed in Europe.

E. No important cyclonic whirl appeared on the Atlantic south of N. 60°, after the passage of the preceding area, until the 24th, and, in fact, no wind force exceeding 8, on the Beaufort scale, was reported during the whole month. On the 23d, noon, a depression was apparently central at N. 54°, W. 48°; and on the 24th, noon, at N. 60°, W. 32°. No further location can be given for this depression, and it probably died away within a few days.

F. On the 27th, noon, a depression was central southeast of Labrador, probably a continuation of low No. XI of the U. S. series for July; this was central on the 28th at N. 52°, W. 32°, after which it disappeared, but a small whirl, which formed at its southeastern end, remained over the 29th and was central on the 31st at N. 55°, W. 20°.

LOW PRESSURES IN THE CARIBBEAN SEA.

The general equatorial belt of low pressure on the Pacific coast of Mexico, Central America, and the northern portion of South America has several times during this month, and especially from the 9th to the 17th, been unusually well marked, giving rise to the appearance of local whirls and storms in the southern portion of the Caribbean Sea, but no extensive storm has developed from this condition. Throughout the West Indies the easterly trade winds have continued steady and the consequent necessary uplift of air in our south Atlantic States and on the eastern slope of the Cordilleras of Mexico and Central America appears to have given rise to an unusually heavy rainfall.

The observer at Santiago de Cuba, Mr. Rafael Innguera, communicates an extract describing the destruction done by torrential rains in the mountainous region of Prieto, situated to the southeast of the city of Saltillo, some time before the 23d of July. This is undoubtedly a part of the system of heavy rains that have caused the destructive floods in the Rio Grande and eastern Texas during July and August. These floods are probably intimately dependent upon the area of high pressure that has prevailed over the United States and the corresponding outflow of air toward the low pressure of the Gulf of California and Pacific coast of Mexico.

OCEAN FOG FOR JULY, 1894.

The limits of fog belts west of the fortieth meridian, as reported by shipmasters, are shown on Chart I by dotted shading. Near the Grand Banks of Newfoundland fog was reported on 26 dates; between the fifty-fifth and sixty-fifth meridians on 14 dates; and west of the sixty-fifth meridian on 17 dates. Compared with the corresponding month of the last six years, the dates of occurrence of fog east of the fifty-fifth meridian numbered the same as the average; between the fifty-fifth and sixty-fifth meridians, 5 less than the average; and west of the sixty-fifth meridian, 6 more than the average.

OCEAN ICE IN JULY, 1894.

The limits of the region within which icebergs or field ice were reported for July, 1894, are shown on Chart I by crosses.

The southernmost ice reported, an iceberg on the 1st in the position given, was about 1¼° south of the average southern limit of ice for July. The easternmost ice reported, a berg on the 7th about 100 feet high and 500 feet long in the position given in the table, was about three-fourths of a degree east of the average eastern limit of ice for July. The ice reported was distributed over the Grand Banks, off the eastern coast of Newfoundland, and in and east of the Straits of Belle Isle.

The following table shows the southern and eastern limits of the regions within which icebergs or field ice were reported for July during the last twelve years:

Southern limit.			Eastern limit.		
Month.	Lat. N.	Long. W.	Month.	Lat. N.	Long. W.
	° ′	° ′		° ′	° ′
July, 1883	42 42	49 57	July, 1883	46 47	45 44
July, 1884	46 24	50 02	July, 1884	48 36	46 28
July, 1885	42 14	48 30	July, 1885	48 00	44 00
July, 1886	42 59	49 18	July, 1886*	45 52	34 30
July, 1887	43 30	50 05	July, 1887	52 04	41 16
July, 1888	46 30	54 00	July, 1888	47 40	50 10
July, 1889	44 49	47 45	July, 1889	45 50	40 00
July, 1890	41 25	47 30	July, 1890†	50 08	38 45
July, 1891	43 16	49 45	July, 1891	47 02	48 00
July, 1892	43 04	50 17	July, 1892	48 00	44 40
July, 1893	41 40	50 08	July, 1893	46 10	42 20
July, 1894	42 14	48 57	July, 1894	47 32	43 00
Mean	43 13	49 41	Mean	47 48	43 14

* An iceberg and field ice.
† On the 10th a small block of ice was reported in N. 48° 33′, W. 24° 11′.

TEMPERATURE OF THE AIR.

[*In degrees Fahrenheit.*]

The distribution of the monthly mean temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart II; the lines are drawn over the high irregular surface of the Rocky Mountain plateau, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

NORMAL TEMPERATURE.

In Table II, for voluntary observers, the mean temperature is given for each station, but in Table I, for the regular stations of the Weather Bureau, both the mean temperatures and the departures from the normal are given for the current month. In the latter table the stations are grouped by geographical districts, for each of which is given the average temperature and departure from the normal; the normal for any district or station may be found by adding the departures to the current average when the latter is below the normal and by subtracting when it is above.

MONTHLY MEAN TEMPERATURE.

For the regular stations of the Weather Bureau the monthly mean temperature is the simple mean of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

During July, 1894, the highest mean temperatures at regular Weather Bureau stations were: Yuma, 91.0; Key West, 82.4; Abilene, 82.0; Galveston, 81.3; Tucson, 85.0; El Paso, 81.0. The lowest mean temperatures were: Tatoosh Island, 54.1; Eureka. 54.4; Point Reyes Light, 52.2; Sault Ste. Marie, 64.5; Eastport, 60.6. At Canadian stations the lowest was: Father Point, 57.0. The highest was: Medicine Hat, 73.0. The temperature averaged 32 at no point within the limits of the daily map.

DEPARTURES FROM NORMAL TEMPERATURE FOR JULY, 1894.

The following table shows for certain stations, as reported by voluntary observers, the normal and extreme mean temperatures and the departures for this month:

State and station.	(1) Normal for the month of July.	(2) Length of record.	(3) Mean for July, 1894.	(4) Departure from normal.	(5) Extreme monthly means for July.			
					Highest.	Year.	Lowest.	Year.
Arizona.	°	*Years*	°	°	°		°	
Fort Apache	75.6	22	72.8	− 2.8	83.6	1877	70.3	1883
Whipple Barracks	75.0	23	73.8	− 1.2	81.7	1878	70.4	1883, 1891
Arkansas.								
Keesees Ferry	81.0	12	76.1	− 4.9	84.2	1888	75.2	1882
California.								
Riverside	76.7	12	75.2	− 1.5	79.4	1883	73.1	1892
Colorado.								
Las Animas	75.6	11	74.8	− 0.8	79.1	1890	73.0	1891
Florida.								
Merritts Island	81.0	12	81.5	+ 0.5	83.2	1893	78.5	1886
Georgia.								
Forsyth	81.8	20	79.2	− 2.6	85.7	1881	78.3	1882
Idaho.								
Boise Barracks	73.7	20	73.8	+ 0.1	79.6	1873	69.4	1884
Fort Sherman	66.9	10	68.8	+ 1.9	74.2	1889	62.6	1884
Indiana.								
Lafayette	73.8	12	73.5	− 0.3	79.8	1887	69.0	1882
Iowa.								
Cresco	70.8	21	74.2	+ 3.4	75.2	1874	65.1	1891
Kansas.								
Eureka Ranch	80.7	11	78.8	− 1.9	86.2	1890	76.3	1891
Independence	79.5	22	80.9	+ 1.4	85.9	1879	74.7	1891
Salina	81.1	10	81.2	+ 0.1	86.3	1890	76.2	1891
Louisiana.								
Grand Coteau	82.1	9	78.0	− 4.1	85.4	1884	78.0	1894
Maine.								
Orono	67.0	23	67.2	+ 0.2	71.0	1887	64.2	1884

Departures from normal temperature—Continued.

State and station.	(1) Normal for the month of July.	(2) Length of record.	(3) Mean for July, 1894.	(4) Departure from normal.	(5) Extreme monthly means for July.			
					Highest.	Year.	Lowest.	Year.
Maryland.	°	*Years*	°	°	°		°	
Cumberland	72.2	23	75.2	+ 3.0	77.7	1889	70.3	1888
Michigan.								
Kalamazoo	72.3	17	74.0	+ 1.7	77.8	1885	67.2	1891
Missouri.								
Sedalia	78.4	14	77.4	− 1.0	82.8	1888	71.2	1891
Montana.								
Fort Custer	70.9	12	74.5	+ 3.6	74.5	1894	67.8	1884
Nebraska.								
Fort Robinson	72.6	11	71.8	− 0.8	78.1	1886	66.9	1891
Genoa (near)	74.7	18	77.8	+ 3.1	78.6	1890	69.8	1891
Nevada.								
Carson City	70.9	16	66.6	− 4.3	73.7	1875	65.5	1893
New Hampshire.								
Hanover	69.1	22	69.7	+ 0.6	72.1	1878	66.3	1893
New Mexico.								
Fort Wingate	73.2	22	71.8	− 1.4	77.8	1873	68.1	1888
New York.								
Cooperstown	68.1	23	68.5	+ 0.4	73.0	1887	64.5	1884
Plattsburg Barracks	69.5	22	70.2	+ 0.7	73.2	1887	65.2	1891
North Carolina.								
Lenoir	74.5	21	73.7	− 0.8	77.7	1877	66.4	1884
Oklahoma.								
Fort Reno	80.7	11	80.6	− 0.1	84.9	1887	76.2	1891
Fort Sill	82.3	23	80.4	− 1.9	86.0	1871	77.2	1880
Fort Supply	80.6	15	78.3	− 2.3	85.8	1874	76.4	1891
Oregon.								
Bandon	57.6	10	57.5	− 0.1	59.5	1888	54.6	1887
Pennsylvania.								
Dyberry	67.7	21	69.4	+ 1.7	72.6	1887	63.0	1891
Grampian	70.5	23	72.2	+ 1.7	76.8	1887	65.4	1891
Wellsboro	68.7	15	70.5	+ 1.8	76.1	1881	60.4	1891
South Carolina.								
Statesburg	78.3	13	76.5	− 1.8	84.0	1881	74.6	1891
South Dakota.								
Fort Sully	74.9	23	80.7	+ 5.8	80.7	1894	70.9	1884
Texas.								
Austin	84.0	21	86.0	+ 2.0	88.3	1879, 1884	82.0	1877
Silver Falls	80.6	8	78.4	− 2.2	83.9	1888	74.6	1887
Utah.								
Terrace	82.1	18	80.1	− 2.0	89.3	1874	77.6	1875
Vermont.								
Strafford	69.0	21	67.1	− 1.9	73.5	1887	65.2	1893
Virginia.								
Dale Enterprise	75.6	14	74.0	− 1.6	83.0	1887	71.5	1884
Washington.								
Fort Townsend	61.2	20	61.4	+ 0.2	66.1	1875	58.3	1893
West Virginia.								
Parkersburg	77.5	13	.....	.....	87.0	1881	68.9	1886
Wisconsin.								
Madison	72.1	23	74.6	+ 2.5	75.2	1885	66.6	1891
Wyoming.								
Fort Washakie	69.2	9	67.2	− 2.0	73.7	1886	65.4	1891

As compared with the normal for July the mean temperatures for the current month were decidedly in excess in Manitoba, Assiniboia, and Alberta, the maximum being 6.6 at Qu'Appelle. The line of no departure passes from British Columbia south to central California, thence northeast to Montana, southeast to Kansas, and east to New Jersey. South and west of this line temperatures were generally below the normal, the largest deficits being 3.6 at San Francisco; 3.2 at San Diego; 3.4 at New Orleans; 3.8 at Shreveport; 3.6 at Savannah; and 4.4 at Augusta.

Considered by districts the mean temperatures for the current month show the following departures from normal temperatures:

Positive departures: New England, 1.4; middle Atlantic States, 0.4; lower Lake region, 1.0; upper Lake region, 1.7; North Dakota (extreme northwest), 2.7; upper Mississippi valley, 1.2; Missouri Valley, 0.2; northern slope, 0.7; middle plateau, 0.2; northern plateau, 0.6.

Negative departures: South Atlantic States, 2.5; Key West, 2.0; east Gulf, 2.7; west Gulf, 2.5; Ohio Valley and Tennessee, 0.8; middle slope, 1.1; southern slope (Abilene), 1.4; southern plateau, 1.4; north Pacific, 0.4; middle Pacific, 0.4; southern Pacific, 2.0.

THE DAILY AND MONTHLY RANGES OF TEMPERATURE.

The greatest daily range of temperature is given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station.

Greatest daily ranges.—Large values: Olympia and Havre, 48; Huron, 47; Pysht, Laramie, and Williston, 46; St. Vincent and Idaho Falls, 45; Moorhead, Columbia, Mo., Bismarck, Miles City, and Columbia, Kans., 44. Small values: Eureka, 17; Point Reyes Light, 20; San Diego, 18; Galveston and Block Island, 17; Nantucket, Jupiter, Key West, and Cape Hatteras, 12; Southport and Woods Holl, 19.

Extreme monthly ranges.—Large values: Huron, 61; St. Vincent, 60; Sioux City, 59; Olympia and Moorhead, 56; Havre, Miles City, Marquette, and Columbia, Mo., 55. Small values: Eureka, Key West, and Hatteras, 18; San Diego and Jupiter, 20; Nantucket, 26; Point Reyes Light and Fort Canby, 24.

DIURNAL PERIODICITY.

The regular diurnal period in temperature is shown by the hourly means given in Table V for all stations having self-registers.

YEARS OF HIGHEST MEAN TEMPERATURE FOR JULY.

The mean temperature for July, 1894, was the highest on record at regular Weather Bureau stations, as shown in the following table, which also gives the highest previous record:

Stations.	July, 1894.		Highest previous.	
	Mean temperature.	Departure from normal.	Temperature.	Year.
Huron, S. Dak	75.6	+3.4	74.4	1886
St. Paul, Minn	75.8	+3.8	74.6	1874
Sault Ste. Marie, Mich	64.5	+3.4	64.4	1892
Harrisburg, Pa	76.0	+3.1	74.8	1893
Vineyard Haven, Mass	73.6	+3.0	73.2	1887

YEARS OF LOWEST MEAN TEMPERATURE FOR JULY.

The mean temperature for July, 1894, was the lowest on record at regular Weather Bureau stations, as shown in the following table:

Stations.	July, 1894.		Lowest previous.	
	Mean temperature.	Departure from normal.	Temperature.	Year.
Corpus Christi, Tex	81.0	−1.8	81.1	1892
Galveston, Tex	81.3	−3.3	82.1	1892
New Orleans, La	79.2	−3.4	79.8	1886
Jupiter, Fla	79.8	−2.5	80.3	1891
Augusta, Ga	77.8	−4.4	77.9	1886
Charleston, S. C	78.8	−3.5	79.1	1874
Southport, N. C	76.8	−3.0	77.1	1892

MAXIMUM TEMPERATURE.

The maximum temperatures of the month at regular stations of the Weather Bureau are given in Table I, from which it appears that the highest maxima were: Yuma, 113; Tucson, Fresno City, Red Bluff, Dodge City, and Omaha, 106; Pierre, 108; Yankton, 107; Fort Smith and Columbia, Mo., 105; Sacramento, Abilene, Oklahoma, Wichita, Columbia, Kans., and Des Moines, 104; Palestine, Little Rock, North Platte, Miles City, and Valentine, 103; Keokuk, Dubuque, Moorhead, and El Paso, 102; Shreveport, Topeka, and Bismarck, 101; Vicksburg, Hannibal, Davenport, La Crosse, St. Paul, Minneapolis, Sault Ste. Marie, St. Vincent, Williston, and Rapid City, 100. The lowest maxima were: Tatoosh Island, 75; Eureka, 64; Point Reyes Light, 68; Cape Hatteras, 86; Southport, 85; Nantucket, 83; Block Island, 84; Atlantic City, 87.

YEARS OF HIGHEST MAXIMUM TEMPERATURE FOR JULY.

The maximum temperature for July was the highest on record at regular Weather Bureau stations, as shown in the following table:

Stations.	July, 1894.		Highest previous.	
	Maximum.	Excess above previous record.	Temperature.	Year.
Corpus Christi, Tex	98	+3	95	*
Galveston, Tex	97	0	97	1875
New Orleans, La	99	+3	96	*
Palestine, Tex	103	+1	102	1887
Vicksburg, Miss	100	0	100	*
Little Rock, Ark	103	+2	101	1884
Memphis, Tenn	99	0	99	*
Fort Smith, Ark	105	+1	104	?
Wichita, Kans	104	+2	102	1890
Columbia, Kans	104	0	104	1892
Omaha, Nebr	106	+1	105	*
Des Moines, Iowa	104	0	104	1886
Davenport, Iowa	100	+1	99	1887
Dubuque, Iowa	102	+1	101	*
St. Paul, Minn	100	0	100	1883
Huron, S. Dak	108	+4	104	*
Moorhead, Minn	102	+4	98	1890
St. Vincent, Minn	100	+5	95	*
Marquette, Mich	100	0	100	1878
Sault Ste. Marie, Mich	94	+6	88	*
Alpena, Mich	98	0	88	1886
Grand Haven, Mich	92	+2	90	*
Rochester, N. Y	99	+3	96	1881
Northfield, Vt	93	+2	91	1887
Portland, Me	97	0	97	1876

* Frequently.

MINIMUM TEMPERATURE.

The minimum temperatures of the month at regular stations of the Weather Bureau are given in Table I, from which it appears that the lowest minima were:

Idaho Falls, 38; St. Vincent and Olympia, 40; Sault Ste. Marie and Neah Bay, 41; Northfield, 42; Point Reyes Light, 44; Tatoosh Island, 45. The highest minima were: Yuma and Key West, 72; Jupiter, Tampa, Port Eads, and Corpus Christi, 70.

YEARS OF LOWEST MINIMUM TEMPERATURE FOR JULY.

The minimum temperatures for July were the lowest on record at regular Weather Bureau stations as shown in the following table:

Stations.	July, 1894.		Lowest previous.	
	Minimum.	Deficit below previous record.	Temperature.	Year.
Olympia, Wash	40	0	40	*
Detroit, Mich	48	−1	49	1891
Cleveland, Ohio	48	−2	50	*
Pittsburg, Pa	49	−1	50	*
Parkersburg, W. Va	48	−1	49	1892
Atlanta, Ga	58	0	58	*
Augusta, Ga	60	−2	62	*
Charleston, S. C	64	−1	65	*
Little Rock, Ark	60	0	60	1891
Vicksburg, Miss	62	0	62	1894
Shreveport, La	63	−1	64	*
Palestine, Tex	63	0	63	1882
Abilene, Tex	62	−2	64	*
Corpus Christi, Tex	70	0	70	*
New Orleans, La	67	0	67	1892

* Frequently.

LIMITS OF FREEZING TEMPERATURE.

The region within which the air has had a freezing temperature at some time during the month is bounded by the minimum isotherm of 32°. During July this minimum does not occur at regular Weather Bureau stations, except at the summits of Mt. Washington and Pikes Peak; its occasional occurrence at voluntary stations is shown in Table II.

ACCUMULATED TEMPERATURES.

From January 1 to the end of the current month the average temperature for each geographical district was above or below the normal by an amount that is given in the last column of the following table. The accumulated monthly departures from normal temperatures, as given in the second column,

may be used for comparison with the departures of current conditions of vegetation from the normal conditions.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
New England	+ 9.1	+ 1.3	Key West	− 3.5	− 0.5
Middle Atlantic	+12.6	+ 1.8	East Gulf	− 0.1	0.0
South Atlantic	+ 5.2	+ 0.7	Southern plateau	−14.4	− 2.1
West Gulf	+ 0.6	+ 0.1	Middle plateau	− 9.1	− 1.3
Ohio Valley and Tennessee	+ 9.5	+ 1.4	Northern plateau	− 4.8	− 0.7
Lower Lake	+18.6	+ 2.7	Northern Pacific	− 9.8	− 1.4
Upper Lake	+23.3	+ 3.3	Middle Pacific	−13.8	− 2.0
North Dakota (Ex. NW.)	+19.2	+ 2.7	Southern Pacific	−18.8	− 2.7
Upper Mississippi	+18.7	+ 2.7			
Missouri Valley	+13.8	+ 2.0			
Northern slope	+ 2.3	+ 0.3			
Middle slope	+ 2.8	+ 0.4			
Southern slope (Abilene)	+ 3.9	+ 0.6			

PERIODS OF HIGH TEMPERATURE.

The maximum temperatures of July generally occurred during areas of high pressure and clear, dry weather, and were evidently due to the combination of the several circumstances that conspire to bring abnormal high temperatures to any place. In general, and in the order of their importance, these favorable circumstances are as follows: (1) clear sky and maximum insolation, (2) descending currents with the consequent compression and dynamic warming, (3) favorable winds, and (4) dry, warm soil.

The combination of light winds or calms with high insolation and the radiation from a dry, hot soil is oftentimes less efficient than the dynamic warming of the strong descending winds that attend the cyclonic circulation around areas of low pressure. When these descending cyclonic winds are also the descending winds of the plains on the eastern Rocky Mountain slope, we have the special hot winds that occur in the summer time from Texas to the Dakotas. This combination was explained by the editor in 1890 (see WEATHER REVIEW, Feb., 1894, p. 77), and has been elaborately defended in a memoir by Dr. I. M. Cline (Am. Met. Journ., Sept., 1894, p. 175, and Bull. Phil. Soc., Wash., 1894, XII, p. 335). The principal hot periods of the current month were as follows:

(A) 1st, the maximum temperatures of the month occurred in Louisiana, Arkansas, southern Missouri, and on the 2d this area had extended eastward to Kentucky, Tennessee, and Alabama, and westward to Texas and Oklahoma; on the 3d, it extended westward over central Texas, and on the 4th, reached northern Mexico and El Paso on the west, and Georgia on the east. During the 5th and 6th, South Carolina, and on the 7th, southern South Carolina and the peninsula of Florida had the highest temperatures of the month.

(B) On the 10th the highest temperatures of the month were experienced in northern Nevada, Utah, western Colorado, Wyoming, and western South Dakota. This warm region advanced eastward, covering South Dakota and Minnesota on the 11th, Wisconsin on the 12th, Virginia on the 13th, and the interior of North and South Carolina and southern New Jersey on the 14th.

(C) From the 13th to the 20th the high pressure stretching from British Columbia to Florida gave frequent occasion for southerly winds and high temperatures on the northern border of our Weather Map, and the maximum temperatures of the month occurred during this week in western Oregon, 12th, 13th, 14th; at St. Vincent, 16th; in southern Michigan, Ohio, western Pennsylvania, and New York, 17th to 20th.

(D) From the 21st to the 25th, areas of low pressure were developing and moving slowly eastward from British Columbia. On the southern side of this region areas of high pressure prevailed, bringing the highest temperatures of the month, on the 23d, in western Oregon, Washington, Idaho, and western Montana; from the 24th to the 26th, in eastern Montana, Nebraska, Colorado, Kansas, Missouri, Iowa, Illinois, Wisconsin, and upper Michigan. The maximum temperature at these stations ranged from 100° to 107° on the 25th and 26th with wind as high as 35 to 50 miles per hour. Owing to the great evaporation caused by these hot, dry winds, vegetation suffered severely. The area of low pressure, No. XII, was central on the 26th, p. m., in central South Dakota, and the 27th, p. m., in the southeastern corner of South Dakota. The intensely hot, dry, southerly winds were south and east of this center and corresponded to still more rapid southwest winds in the upper regions of the atmosphere, and must, therefore, have, within the preceding twenty-four hours, descended into the lower parts of this cyclone from above the Cordilleras and plateau of Mexico. As very little rainfall or cloud could occur, the low pressure rapidly filled up and disappeared after the 27th.

(E) The influence of the causes producing these hot winds was felt slightly in Ohio on the 27th, and in the middle Atlantic States and New England on the 28th and 29th, when the maximum temperatures of the month generally occurred. But in these regions the high temperatures were generally between 95° and 100°, and the winds rarely above 20 miles, and much more cloud, with occasional light rain, occurred. On these days the principal flow of air in the regions above these States seems to have been the outflow from the tropical area of high pressure over the Atlantic which was at that time impinging on the south Atlantic coast.

AREAS OF 20° RISE IN TWENTY-FOUR HOURS.

The daily weather charts show by heavy dotted lines the regions over which the temperature has risen 20° in the preceding twenty-four hours. The occurrence of such rapid rises becomes less frequent as we approach the midsummer season, and no such areas appear on the maps for the current month; but numerous cases occurred where this limit was very nearly attained.

PERIODS OF LOW TEMPERATURE.

The minimum temperatures occurred principally during the first half of the month and may be arranged in the following groups:

(A) On the 1st in eastern Oregon, Montana, and South Dakota. This region of low temperature spread eastward, covering Iowa, Wisconsin, southern Michigan, and Indiana on the 7th; Ohio, Kentucky, Tennessee, and West Virginia on the 8th; the lower Lakes, Pennsylvania, New York, and southern New England on the 9th; the middle Atlantic States, North and South Carolina, and Georgia on the 10th and 11th; it also extended southwestward over southern Missouri, Kansas, and Arkansas on the 9th; and Mississippi, Louisiana, and Texas on the 10th.

(B) In Nebraska the lowest temperatures of the month generally occurred on the 20th, and this minimum moved southward into Colorado and Kansas on the 21st and eastward into Missouri and Illinois on the 22d; it reached Cairo and Meridian on the 24th.

In general these minimum temperatures represent the combined effect of local radiation and the very slow descent of cold air on clear nights in the midst of the areas of high pressure.

As a rule the regions of maximum fall in temperature during the night, or of maximum fall in twenty-four hours, is in advance of the region of maximum rise of the barometer in twenty-four hours and thus indicates the direction in which the atmosphere is flowing outward from the area of high pressure.

AREAS OF 20° FALL IN TWENTY-FOUR HOURS.

A fall of temperature of 20°, or more, in twenty-four hours is not called a cold wave by the Weather Bureau unless the tem-

perature falls below 40°, and is, therefore, likely to cause a frost injurious to vegetation, but all falls of 20° are indicated on the Daily Weather Map by inclosing the areas within which they occur by heavy dotted lines, and the following list enumerates these regions for the month of July (the dimensions of the principal axes of the areas are stated in miles):

(A) 20th, a. m., 200 by 300 over Lake Superior. This fall represented the front of a mass of cool air flowing southward in connection with high area No. IV. 20th, p. m., 100 by 200, southeastern Michigan. This fall was due largely to the change from bright sunshine on the 19th to rain on the 20th, accompanied by the cold, northerly winds of high No. IV. This cold area does not appear on the map of the 21st, a. m., although falls of 18° occurred at Montreal and Buffalo, but it reappeared on the map of the 21st, p. m., when falls of 20° occurred at Boston and Albany and 18° at Portland, Me., representing an area of about 150 by 250. The relations of the so-called local storms to the general movements of the atmosphere were elucidated by Marie-Davy in 1864 and E. Fron in 1867; in 1871 the present editor showed that a very important class of our local rains and thunderstorms occurs at the front of advancing waves of cool, dry air, and may, therefore, be described as located on the south and east sides of areas of high pressure. When the winds develop into a cyclonic system the local storms are carried around to the south and east sides of the cyclonic center and are most frequent in the area of southerly surface winds.

(B) The map of the 25th, 8 p. m., shows a fall of 20° at Chicago, 26° at Duluth, and 18° at Port Arthur, but these three falls are apparently local matters due to the change from hot land breezes to cold lake breezes. On the other hand the stations in Montana, Assiniboia, and Alberta also show falls of 20° or more, evidently due to the inflow of cool air in the rear of low No. XII and in advance of high No. V; an area of 300 by 400 is covered by this fall. 26th, p. m., 200 by 150 in the western part of North Dakota. 27th, p. m., 100 by 100, South Dakota and Nebraska. 28th, p. m., 100 by 100, Upper Michigan. These successive areas of 20° fall are apparently all due to the change of wind and temperature immediately following in the rear of low No. XII.

(C) 30th, 8 p. m., 300 by 200, Wisconsin and Minnesota. This represents the front of an area of high pressure descending southward in connection with low No. XIII, but the heaviest fall, 26°, at Duluth, was largely due to the change from land breeze to lake breeze.

FROSTS.

Notwithstanding the high temperature of July a few reports of frosts have been received, viz, 9th, light at Garrettsville and Lordstown, Ohio; Cassandra, Lock Haven, Saegerstown, Kane, and Somerset, Pa.

PRECIPITATION.

[*In inches and hundredths.*]

The distribution of precipitation for the month of July, 1894, as determined by reports from about 2,000 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III; the first of these also gives the average departures from the normal for each district, whereas the average departure for each State is given in the chapter on State Weather Services.

NORMAL PRECIPITATION FOR JULY.

The normal precipitation for the month of July is usually greatest on the east Gulf and west Florida coasts. From 4 to 6 inches usually falls in the Mississippi Valley and westward to the Rocky Mountain slope. Less than 1 inch is to be expected in Oregon and the plateau region, and little or none in California.

PRECIPITATION FOR CURRENT MONTH.

The total precipitation for the current July was heaviest in southeastern Georgia and South Carolina, where it ranged between 10 and 15 inches. From this region outward it diminished to about 2 inches at Key West, 6 inches at Galveston and Norfolk, and in northern Georgia, northern Mississippi, and western North Carolina; 1 inch or more fell in the region southeast of central Michigan, central Illinois, northern Missouri, eastern Oklahoma, and central Texas. The average rainfall for Iowa, Wisconsin, Minnesota, and the eastern portion of Kansas, Nebraska, North and South Dakota was about one-half inch, constituting the beginning of a severe drought and stimulating useless efforts at rain-making in various parts of these States. The operations on the 14th, 15th, 16th, and 26th to 31st, by several persons in different places, do not seem to have given those localities any more rain than happened in their neighborhood.

CURRENT DEPARTURES FROM NORMAL PRECIPITATION.

The precipitation for July was in excess over the greater part of the Gulf and south Atlantic States, but decidedly deficient in the Middle and Eastern States, Ohio Valley, the Lake region, and Missouri and upper Mississippi valleys.

The principal departures from the normal were:

Excesses: New Orleans, 5.1; Augusta, 5.8; Savannah, 8.1.

Deficits: Dubuque, 4.9; Omaha, 4.7; Lexington, 4.3; Keokuk, 3.9; Philadelphia, 3.8; Pittsburg and Huron, 3.7; Indianapolis, 3.5; Davenport, 3.4; Halifax, Chicago, and St. Paul, 3.2.

The following table shows for certain stations, as reported by voluntary observers, the normals and extremes of total precipitation for this month and the current departures:

State and station.	(1) Average for the month of July.	(2) Length of record.	(3) Total for July, 1894.	(4) Departure from average.	(5) Extremes for July.			
					Greatest.		Least.	
					Amt.	Year.	Amt.	Year.
Arizona.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Fort Apache	3.75	18	1.27	— 2.48	8.76	1878	0.14	1884
Whipple Barracks	2.89	23	1.13	— 1.76	5.92	1875	0.55	1877
Arkansas.								
Keesees Ferry	4.74	12	10.52	+ 5.78	11.60	1883	1.15	1888
California.								
Riverside	T.	13	0.00	— T.	0.02	1888	0.00	*
Colorado.								
Las Animas	1.67	11	0.10	— 1.57	4.66	1886	0.10	1894
Florida.								
Merritts Island	5.88	16	3.87	— 2.01	11.72	1884	0.86	1883
Georgia.								
Forsyth	4.77	20	5.91	+ 1.14	12.70	1887	0.32	1878
Idaho.								
Boise Barracks	0.17	20	0.00	— 0.17	0.60	1884	0.00	†
Fort Sherman	0.51	10	T.	— 0.51	1.67	1884	0.00	1882, 1883
Indiana.								
Lafayette	3.53	12	1.55	— 1.98	5.81	1884	0.88	1887
Iowa.								
Cresco	4.24	21	0.09	— 4.15	12.70	1883	0.09	1894
Kansas.								
Independence	4.15	22	2.36	— 1.79	11.56	1875	0.77	1888
Salina	4.17	10	0.33	— 3.84	7.20	1885	0.30	1890
Louisiana.								
Grand Coteau	5.76	10	6.54	+ 0.78	12.36	1889	1.89	1888
Maine.								
Orono	3.40	23	2.41	— 0.99	7.11	1887	1.05	1886
Maryland.								
Cumberland	3.41	22	3.23	— 0.18	5.59	1887	1.01	1885
Michigan.								
Kalamazoo	3.38	18	1.34	— 2.04	6.50	1877	0.79	1887
Missouri.								
Sedalia	4.35	16	2.81	— 1.54	10.21	1893	0.62	1886
Montana.								
Fort Custer	1.03	13	1.75	+ 0.72	2.51	1880	0.06	1890

Departures from average precipitation—Continued.

State and station.	(1) Average for the month of July.	(2) Length of record.	(3) Total for July, 1894.	(4) Departure from average.	(5) Extremes for July.			
					Greatest.		Least.	
					Amt.	Year.	Amt.	Year.
Nebraska.	*Inches.*	*Years*	*Inches.*	*Inches.*	*Inches.*		*Inches*	
Fort Robinson	2.15	10	2.96	+ 0.81	3.24	1891	0.74	1886
Genoa (near)	4.23	18	1.00	— 3.23	7.45	1876	0.90	1877
Nevada.								
Browns								
Carson City	0.18	16	0.23	+ 0.05	1.25	1886	0.00	†
New Hampshire.								
Hanover	3.40	21	2.26	— 1.14	8.48	1877	1.66	1884
New Mexico.								
Fort Wingate	2.18	23	1.91	— 0.27	4.64	1883	0.26	1873
New York.								
Cooperstown	3.45	23	3.41	— 0.04	7.80	1892	1.52	1888
Plattsburg Barracks	3.65	23	2.52	— 1.13	9.18	1874	1.12	1888
North Carolina.								
Lenoir	4.70	21	4.97	+ 0.27	9.10	1886	1.70	1884
Oklahoma.								
Fort Reno	2.85	11	1.31	— 1.54	6.97	1891	0.82	1886
Fort Sill	2.54	23	1.91	— 0.63	8.21	1875	0.19	1871
Fort Supply	3.75	15	2.63	— 1.12	9.34	1881	0.98	1886
Oregon.								
Bandon	0.61	15	0.05	— 0.56	1.90	1878	0.00	1885
Pennsylvania.								
Dyberry	4.68	23	1.26	— 3.42	9.28	1887	1.26	1894
Grampian	4.97	23	4.06	— 0.91	7.33	1889	2.41	1892
Wellsboro	5.72	15	3.88	— 1.84	12.30	1880	2.15	1892
South Carolina.								
Statesburg	4.67	13	8.72	+ 4.05	8.72	1894	1.70	1884
South Dakota.								
Fort Sully	2.92	23	0.90	— 2.02	7.45	1878	0.25	1890
Texas.								
Austin	1.80	21	T.	— 1.80	5.16	1874	0.00	1871, 1884
Silver Falls	1.82	7	0.27	— 1.55	3.06	1886	0.27	1894
Utah.								
Terrace	0.15	20	T.	— 0.15	0.75	1874	0.00	†
Vermont.								
Strafford	4.32	21	1.22	— 3.10	6.77	1873	0.91	1892
Virginia.								
Dale Enterprise	4.37	14	2.24	— 2.13	7.05	1887	1.13	1883
Washington.								
Fort Townsend	0.80	19	0.20	— 0.60	4.41	1888	0.01	1889
West Virginia.								
Parkersburg	4.98	9	.....	.....	10.33	1888	2.17	1885
Wisconsin.								
Madison	4.18	23	1.75	— 2.43	9.47	1881	0.79	1886
Wyoming.								
Fort Washakie	0.71	9	0.38	— 0.33	1.26	1886	0.07	1893

*Generally. †Frequently.

Considered by districts, the precipitation for July, 1894, when compared with the normal for the month, furnishes the departures given in Table I, as expressed in inches. By dividing those departures by the normal precipitation for June we obtain the following corresponding percentages (precipitation is in excess when the percentage of the normal exceeds 100):

Below the normal: New England, 36; middle Atlantic States, 71; Key West, Ohio Valley, and Tennessee, 52; lower Lake region, 61; upper Lake region, 35; North Dakota, or the extreme northwest, 16; upper Mississippi Valley, 20; Missouri Valley, 46; northern slope, 72; middle slope, 73; southern slope (Abilene), 50; southern plateau, 63; northern plateau, 29; north Pacific, 56.

Normal: Southern Pacific, 100; middle Pacific, 100.

Above the normal: South Atlantic, 133; east Gulf States, 128; west Gulf States, 135; middle plateau, 267.

YEARS OF GREATEST PRECIPITATION FOR JULY.

The precipitation for the current month was the greatest on record for the month of July at the regular Weather Bureau stations shown in the following table:

Station.	Current precipitation.		Previous maximum.	
	Amount.	Departure.	Amount.	Year.
Savannah, Ga	13.18	+ 8.1	10.12	1874
Corpus Christi, Tex	4.87	+ 2.8	2.25	1888

YEARS OF LEAST PRECIPITATION FOR JULY.

The precipitation for the current month was the least on record for the month of July at the regular Weather Bureau stations shown in the following table:

Station.	Current precipitation.		Previous minimum.	
	Amount.	Departure.	Amount.	Year.
Eastport, Me	1.21	—3.1	1.21	1892
Nantucket, Mass	0.29	—2.7	0.91	1892
Block Island, R. I	0.22	—3.0	0.86	1885
New London, Conn	0.44	—3.9	1.35	1888
Woods Holl, Mass	0.68	—2.7	1.56	1873
Philadelphia, Pa	0.75	—3.8	0.92	1876
Atlantic City, N. J	0.15	—3.3	0.92	1876
Harrisburg, Pa	1.89	—2.4	1.92	1893
Pittsburg, Pa	1.16	—3.7	1.99	1882
Parkersburg, W. Va	1.18	—3.2	2.22	1893
Knoxville, Tenn	2.24	—2.1	2.30	1872
Lexington, Ky	0.87	—4.5	3.11	1893
Cincinnati, Ohio	0.13	—3.0	1.31	1887
Toledo, Ohio	0.42	—2.8	0.59	1886
Port Huron, Mich	0.65	—1.9	0.69	1889
Alpena, Mich	0.91	—2.3	1.48	1882
Grand Haven, Mich	0.57	—2.4	0.90	*
Fort Smith, Ark	1.59	—2.2	1.77	1882
Keokuk, Iowa	0.37	—3.9	0.65	1886
Dubuque, Iowa	0.02	—4.9	1.21	1890
La Crosse, Wis	0.35	—4.2	1.46	1890
St. Paul, Minn	0.13	—3.2	0.52	1877
Valentine, Nebr	0.97	—2.1	1.19	1893
Huron, S. Dak	0.23	—3.7	1.01	1891
Moorhead, Minn	1.03	—3.3	1.95	1889
Bismarck, N. Dak	0.30	—2.1	1.14	1890
Williston, N. Dak	0.02	—2.0	0.56	1886
Miles City, Mont	0.27	—1.1	0.39	1881
Helena, Mont	0.32	—0.6	0.32	1883

ACCUMULATED PRECIPITATION.

The total accumulated monthly departures from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the following table; the third column gives the ratio of this current accumulated precipitation to its normal value:

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
	Inch.	*Per ct.*		*Inch.*	*Per ct.*
New England	—8.10	70	North Dakota (Ex. NW.)	+ 0.30	102
Middle Atlantic	—4.80	82	Middle slope	+ 1.40	111
South Atlantic	—5.10	84	Middle plateau	+ 0.70	109
Key West	—5.80	68	Northern plateau	+ 2.80	123
East Gulf	—3.30	91	North Pacific	+10.50	132
West Gulf	—2.00	90			
Ohio Valley and Tennessee	—6.00	80			
Lower Lake	—2.10	90			
Upper Lake	0.00	100			
Upper Mississippi	—7.60	66			
Missouri Valley	—5.14	75			
Northern slope	—0.30	97			
Southern slope (Abilene)	—1.20	93			
Southern plateau	—1.70	72			
Middle Pacific	—2.10	89			
South Pacific	—4.60	48			

DIURNAL VARIATION.

Table IV*b* gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau. The stations in the southern portion of the United States owed their rainfall during this month to local land and sea breezes and other forms of local vertical circulation chiefly due to local insolation; the hot sun and moist air not only facilitate thermal convection currents from the surface of the ground upward sufficiently high to form clouds, but the action of the sun also on the tops of the clouds further stimulates this convection, and tends to give the maximum rainfall during the hours of sunshine and especially between the hours of 11 a. m. and 4 p. m. Stations in the northern portions of the United States have a drier atmosphere and slightly feebler insolation; the local thermal convection currents more frequently fail to rise high enough to form clouds, and the rain in this region is more frequently due to the nearly horizontal inflow of colder air from long distances, which, by uplifting the surface layer, produces rain most eas-

ily when the dynamic cooling is supplemented by the nocturnal radiation. Therefore, these regions are more likely to have their maximum rainfall during the nighttime and especially between 8 p. m. and 4 a. m.

EXCESSIVE PRECIPITATION.

The following tables for July, 1894, show, by States, the number of stations reporting total precipitation to equal or exceed 10.00 inches during this month, 2.50 in 24 hours, and 1.00 in 1 hour:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Georgia	16	North Carolina	4
South Carolina	11	Alabama	1
Florida	10	Arkansas	1
Louisiana	4		

Daily precipitation to equal or exceed 2.50 *in* 24 *hours.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Georgia	19	2-3, 9, 9-10, 10, 13-14, 15, 15-16, 17-18, 18, 20, 23-24, 24, 26-27, 29, 29-30, 30-31.	Alabama	6	16, 20, 21.
			Florida	4	1, 27, 30-31.
			Ohio	4	20, 20-21.
			Virginia	4	6, 21, 21-22, 22, 22-23.
South Carolina	12	3-4, 9-10, 16, 16-17, 17-18, 18, 19, 21, 22-23, 23-24, 24, 25.	Colorado	3	3, 3-4, 31.
			New York	3	6, 18, 20.
			Maryland	2	6, 21.
			Michigan	2	1, 20.
			Tennessee	2	4-5, 22.
Arkansas	11	4-5, 8, 8-9, 9, 19.	Illinois	1	31.
Missouri	10	4, 28-29, 31.	Indiana	1	1.
North Carolina	9	1-2, 2, 17, 21, 22, 22-23, 23, 30-31, 31.	Iowa	1	31.
			Massachusetts	1	24.
			New Jersey	1	6.
			Pennsylvania	1	6.
Mississippi	8	6, 9, 16, 17, 20-21, 25-26, 27.	West Virginia	1	22-23.
Texas	8	6-7, 7, 15-16, 17-18, 19-20, 30.			
Louisiana	7	4, 6, 8, 14, 18, 22, 30.			

Hourly precipitation to equal or exceed 1.00.

Georgia	17	5, 6, 10, 15, 16, 18, 19, 23, 26, 29, 30.	Massachusetts	4	2, 17, 21.
			Michigan	4	20.
Louisiana	10	3, 4, 13, 14, 15, 16, 17, 20, 22, 26.	Kansas	3	7, 19, 29.
			New York	3	6, 18, 27.
South Carolina	10	3, 5, 9, 16, 17, 19, 23, 25, 30.	Ohio	3	20.
			Arkansas	2	5, 19.
North Carolina	9	1, 17, 19, 21, 22, 23, 26, 30, 31.	Indiana	2	19, 20.
			Maryland	2	21, 27.
Florida	7	1, 4, 9, 11, 12, 14, 17.	Nebraska	2	8.
Mississippi	7	1-2, 6, 8, 16, 17, 20, 21, 31.	Colorado	1	4.
			Indian Territory	1	16.
Alabama	6	9, 15, 16, 18, 22.	Iowa	1	19.
Missouri	6	1, 4, 19, 20, 31.	Kentucky	1	19.
New Jersey	5	6, 31.	Minnesota	1	30.
Pennsylvania	5	2, 20, 21, 24.	Oklahoma	1	16.
Tennessee	5	17, 19, 20, 26, 30, 31.	Texas	1	17.
Virginia	5	1, 6, 17, 21, 22, 25.	Wisconsin	1	31.
Illinois	4	20, 28, 31.			

Excessive precipitation, by stations, for July, 1894.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Citronelle				1.97	0 30	22
Highland Home		2.63	21			
Madison Station		2.65	6			
Maple Grove				1.12	1 00	18
Mobile				1.08	1 00	9
Montgomery				1.08	0 50	22
Rock Mills	13.87	4.58	16	4.58	2 40	16
Scottsboro	10.41			1.25	1 00	15
Do		6.00	16	6.00	4 30	16
Uniontown		3.87	20			
Arizona.						
Fort Grant				1.70	1 25	21
Arkansas.						
Bee Branch				2.00	2 00	5
Camden *b*				1.63	1 30	19

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Arkansas—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Fulton		3.82	9			
Helena *a*		3.41	8-9			
Helena *b*		2.87	9			
Keesees Ferry	10.52	5.22	4-5			
Do		3.93	19			
Kirby		3.00	8			
Little Rock		2.92	8-9			
Lonoke		3.00	8			
Newport *a*		3.90	4-5			
Newport *b*		4.40	4-5			
Newport *c*		4.55	4-5			
Pocahontas		3.33	4-5			
Colorado.						
Cheyenne Wells		3.00	31			
River Bend		4.00	3-4	2.00	1 30	4
Twin Lakes		3.70	3			
Florida.						
Archer	12.21					
Avon Park	10.08					
Brooksville	11.68	2.85	1	2.00	1 00	17
Eustis		3.32	30-31			
Gainesville	10.70			1.47	1 00	11
Grasmere	11.55	2.78	1	2.78	2 15	1
Green Cove Springs	11.46					
Jacksonville				1.20	1 00	11
Kissimmee				1.25	1 00	12
Moseley Hall	15.29					
Orange Park				1.31	0 45	4
Pensacola		2.71	27			
St. Francis Barracks	10.45					
Tallahassee	12.60					
Tampa	11.56					
Tarpon Springs				1.58	0 30	9
Do				1.06	1 00	14
Georgia.						
Alapaha				1.72	1 30	6
Americus		2.65	23-24	1.21	0 40	23
Atlanta		2.64	29-30	1.80	0 49	29
Augusta				1.14	0 52	5
Do				1.26	0 35	18
Brag	10.40			1.55	0 30	15
Camak		2.96	30-31	1.96	1 30	30
Clayton				1.69	1 00	15
Columbus		2.87	15-16	1.62	1 30	15
Do		2.59	29			
Cordele	10.54	3.63	26-27	3.41	1 05	26
Covington				2.26	1 00	19
Dublin *a*		4.07	9-10			
Dublin *b*	10.13	4.37	9-10			
Eastman	10.75	2.83	2-3	1.00	0 30	30
Fleming	11.96					
Griffin	12.23	5.10	26-27			
Hawkinsville	14.84	3.65	9			
Do		3.62	15			
Hephzibah	12.10	2.75	9-10			
Do		3.00	24			
Leverett	10.08	2.80	30			
Louisville	11.96	2.63	10			
Marshallville				1.05	0 30	19
Millen	12.92	3.82	9-10			
Point Peter		3.20	18	3.20	0 45	18
Quitman	12.69	3.05	20	1.03	0 35	29
Savannah	13.18	4.21	9-10	1.03	1 00	10
Do		2.55	17-18	1.98	1 00	18
Thomasville	12.43					
Way Cross	10.84	3.36	13-14			
Waynesboro	15.86	5.43	9-10	1.19	0 53	16
West Point				1.17	0 30	15
Illinois.						
East Peoria				1.54	0 25	31
Mattoon				2.19	1 30	28
Mount Pulaski		2.90	31	2.90	2 15	31
Springfield				1.18	1 00	20
Indiana.						
Butlerville				1.34	0 40	20
Crawfordsville		2.80	1			
Madison				1.37	1 08	19
Indian Territory.						
Healdton				1.95	0 50	16
Iowa.						
Centerville				1.25	0 15	19
Corning		2.50	31			
Kansas.						
Coldwater				2.25	2 00	29
Garfield				1.33	1 10	19
Johnson				1.22	1 00	7
Kentucky.						
Louisville				1.00	1 00	19
Louisiana.						
Bastrop		2.50	6			
Baton Rouge				1.08	1 00	15
Cameron		2.80	18			
Clinton				1.31	0 30	20
Emilie				1.25	0 15	26
Farmerville		3.35	8			
Franklin		4.00	30			
Hammond	10.46	2.92	14			
Lafayette				1.45	1 00	13
Lake Charles				1.50	1 00	22
New Orleans	11.51			1.75	0 52	14
Do				1.37	1 00	16

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Louisiana—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Opelousas	.....	.....	.....	1.06	1 00	4
Do	.....	.....	.....	1.46	1 00	17
Plaquemine	10.17	.....	.....	.....	.....	.....
Port Eads	.....	3.05	22	.....	.....	.....
Rayne	.....	.....	.....	1.82	1 45	3
Shreveport	.....	.....	.....	1.06	1 00	16
Sugar Ex. Station	12.71	.....	.....	1.68	1 10	3
Do	.....	3.02	4	3.02	1 10	4
Maryland.						
Easton	.....	3.04	21	3.04	2 00	21
Mardela Springs	.....	4.47	6	.....	.....	.....
Sunnyside	.....	.....	.....	1.00	1 00	27
Massachusetts.						
Boston (V.O.)	.....	.....	.....	1.12	1 00	21
Fall River	.....	.....	.....	1.05	1 00	2
Mount Nonotuck	.....	.....	.....	1.04	1 00	17
Newburyport	.....	2.74	24	.....	.....	.....
Worcester a	.....	.....	.....	1.39	1 20	17
Michigan.						
Detroit	.....	.....	.....	1.01	1 00	20
Fitchburg	.....	3.10	20	3.10	2 00	20
Hanover	.....	.....	.....	1.00	1 00	20
Rawsonville	.....	.....	.....	1.10	1 00	20
Vandalia	.....	2.52	1	.....	.....	.....
Minnesota.						
Morris	.....	.....	.....	1.00	1 00	30
Mississippi.						
Bay St. Louis	.....	2.80	25-26	.....	.....	.....
Do	.....	4.40	27	.....	.....	.....
Briers	.....	3.60	17	3.60	1 30	17
Brookhaven	.....	2.56	20-21	.....	.....	.....
Columbus	.....	.....	.....	1.15	0 45	21
Crystal Springs	.....	2.90	16	2.90	1 10	16
Fayette	.....	2.80	9	.....	.....	.....
Greenville b	.....	.....	.....	1.39	0 15	6
Itta Bena	.....	2.60	6	.....	.....	.....
Jackson	.....	3.72	9	.....	.....	.....
Natchez	.....	.....	.....	1.00	1 00	8
Vicksburg	.....	.....	.....	1.30	1 00	1-2
Do	.....	.....	.....	1.00	1 00	31
Woodville	.....	3.58	20-21	3.00	2 00	20
Missouri.						
Appleton City	.....	4.90	28-29	.....	.....	.....
Downing	.....	2.65	31	2.65	2 00	31
East Lynne	.....	3.49	28-29	.....	.....	.....
Eight Mile	.....	2.66	28-29	.....	.....	.....
Fox Creek	.....	2.88	28-29	1.59	1 35	1
Ironton	.....	.....	.....	1.30	1 00	19
Kansas City	.....	.....	.....	1.10	0 59	4
New Palestine	.....	.....	.....	2.21	2 00	19
Oakfield	.....	2.96	28-29	1.72	0 40	20
Panacea	.....	2.80	4	.....	.....	.....
Potosi	.....	2.76	4	.....	.....	.....
Do	.....	2.86	31	.....	.....	.....
St. Charles	.....	3.20	28-29	.....	.....	.....
Stellada	.....	2.50	31	.....	.....	.....
Nebraska.						
Wallace	.....	.....	.....	2.00	0 50	8
Wilcox	.....	.....	.....	1.25	0 35	8
New Jersey.						
Bayonne	.....	4.05	6	4.05	3 45	6
Camden	.....	.....	.....	1.56	0 30	31
Freehold	.....	.....	.....	1.78	1 30	31
New Brunswick (W.B.)	.....	.....	.....	1.35	0 48	31
New Brunswick a	.....	.....	.....	1.40	0 50	31
New York.						
Fort Ningara	.....	2.68	20	.....	.....	.....
Middletown	.....	3.02	18	3.02	1 00	18
Minnewaska	.....	.....	.....	1.60	1 15	27
Willets Point	.....	3.55	6	3.55	1 15	6
North Carolina.						
Faulkton	.....	3.20	22	3.20	3 00	22
Goldsboro	.....	.....	.....	2.14	1 00	23
Greensboro	.....	.....	.....	1.40	1 00	1
Do	.....	2.60	22-23	2.00	1 00	22
Hatteras	.....	5.16	1-2	.....	.....	.....
Horse Cove	.....	.....	.....	1.10	1 00	19
Kittyhawk	.....	3.90	17	1.46	1 00	17
Lilesville	11.19	.....	.....	.....	.....	.....
Oak Ridge	.....	.....	.....	1.08	0 30	26
Salisbury	.....	.....	.....	1.20	1 00	26
Do	.....	.....	.....	1.72	1 00	30
Selma	10.19	2.75	22-23	1.25	1 00	23
Do	.....	3.35	31	2.80	1 00	31
Sloan	.....	2.85	2	.....	.....	.....
Southern Pines	10.48	2.66	30-31	.....	.....	.....
Stem	.....	4.13	21	4.13	4 10	21
Washington	11.61	2.76	2	.....	.....	.....
Do	.....	2.57	23	.....	.....	.....
Ohio.						
Clifton	.....	2.52	20-21	.....	.....	.....
North Lewisburg	.....	3.80	20	3.80	1 25	20
Sandusky	.....	2.71	20	2.00	2 00	20
Tiffin	.....	5.08	20	.....	.....	.....
Westerville	.....	.....	.....	1.78	1 15	20
Oklahoma.						
Fort Supply	.....	.....	.....	1.30	1 00	16
Pennsylvania.						
Aqueduct	.....	.....	.....	1.26	0 49	24
Ellwood Junction	.....	.....	.....	1.42	1 00	2
Lebanon	.....	.....	.....	1.49	1 00	24

Excessive precipitation—Continued.

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Pennsylvania—Continued.	*Inches.*	*Inches.*		*Inches*	*h. m.*	
Pottstown	.....	2.97	6	2.10	2 00	21
Somerset	.....	.....	.....	1.35	1 00	20
South Carolina.						
Allendale	11.39	2.53	9-10	1.10	1 00	3
Batesburg	11.74	2.80	23-24	2.00	1 30	23
Blenheim	.....	4.10	18	.....	.....	.....
Branchville	11.73	.....	.....	.....	.....	.....
Charleston	11.26	3.14	3-4	.....	.....	.....
Do	.....	2.78	17-18	.....	.....	.....
Cheraw b	.....	.....	.....	1.76	1 40	30
Conway	11.56	4.34	16-17	2.00	1 20	16
Cross Hill	.....	.....	.....	1.10	1 00	19
Edisto	.....	.....	.....	1.01	1 00	25
Hardeeville	17.31	5.19	9-10	.....	.....	.....
Do	.....	2.52	19	.....	.....	.....
Kingstree a	.....	2.52	16-17	.....	.....	.....
McCormick	12.47	.....	.....	1.45	0 30	5
Do	.....	2.75	21	1.20	1 00	9
Pinopolis	10.65	.....	.....	.....	.....	.....
St. Georges	10.65	4.20	24-25	1.80	1 00	25
St. Matthews	10.20	.....	.....	1.48	1 20	10
Do	.....	.....	.....	1.05	0 15	17
St. Stephens	12.87	3.32	16	3.32	2 00	16
Santuck	.....	3.17	22-23	.....	.....	.....
Shaws Fork	.....	3.00	9-10	.....	.....	.....
Tennessee.						
Clarksville	.....	2.95	4-5	.....	.....	.....
Columbia	.....	.....	.....	1.25	1 10	20
Covington b	.....	.....	.....	1.45	1 00	17
Nashville	.....	.....	.....	1.05	0 35	26
Do	.....	.....	.....	1.03	0 29	31
Newport	.....	3.07	22	.....	.....	.....
Palmetto	.....	.....	.....	1.31	0 30	20
Do	.....	.....	.....	1.56	1 00	30
Rugby	.....	.....	.....	1.10	0 45	19
Texas.						
Eastland	.....	3.70	15-16	.....	.....	.....
Fort Brown	.....	3.30	30	.....	.....	.....
Fort Ringgold	.....	3.00	30	.....	.....	.....
Galveston	.....	2.83	17-18	1.84	1 00	17
Highland	.....	2.60	7	.....	.....	.....
Longview	.....	2.60	6-7	.....	.....	.....
Mountain Spring	.....	3.60	19-20	.....	.....	.....
Weatherford	.....	4.41	6-7	.....	.....	.....
Virginia.						
Cape Charles	.....	3.10	21	3.10	2 00	21
Do	.....	.....	.....	2.00	1 00	25
Irwin	.....	3.00	22	.....	.....	.....
Lynchburg	.....	3.20	22-23	2.75	1 15	22
Norfolk	.....	2.53	6	2.20	1 00	6
Do	.....	3.43	21-22	1.71	1 00	21
Do	.....	.....	.....	1.45	1 00	22
Rocky Mount	.....	.....	.....	1.20	1 10	17
Stanardsville	.....	.....	.....	1.70	1 30	1
West Virginia.						
Bloomery	.....	3.08	22-23	.....	.....	.....
Wisconsin.						
Barron	.....	.....	.....	2.00	1 10	31

Excessive precipitation in June, 1894, received too late for publication.

Missouri.						
Fayette	.....	3.39	25-26	.....	.....	.....
Liberty	.....	2.61	25	.....	.....	.....
New Hampshire.						
Peterboro	.....	.....	.....	1.03	0 30	19
Texas.						
Eastland	.....	3.50	5	3.50	2 00	5

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several States and Territories for July during the last twenty-four years:

Frequency of excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida	19	Ohio	7
North Carolina	14	Indiana	6
Georgia	13	Nebraska	6
New Hampshire	11	Pennsylvania	6
Alabama	11	New York	5
South Carolina	11	Tennessee	5
Louisiana	10	Mississippi	5
Iowa	9	Arkansas	4
Kansas	8	Massachusetts	4
Missouri	8	Michigan	4

Frequency of excessive monthly precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
Texas	4	West Virginia	2
Illinois	3	Colorado	1
New Jersey	3	Connecticut	1
Wisconsin	3	Delaware	1
Maryland	3	District of Columbia	1
Minnesota	3	Indian Territory	1
North and South Dakota	2	Kentucky	1
Virginia	2		

Frequency of excessive daily precipitation.

Kansas	20	Wisconsin	10
Iowa	20	Minnesota	9
Indiana	19	Michigan	9
North Carolina	18	Kentucky	8
Georgia	17	New Jersey	8
South Carolina	17	Virginia	8
Pennsylvania	16	Connecticut	6
Florida	16	New Hampshire	6
Nebraska	16	West Virginia	6
Texas	15	Arkansas	6
North and South Dakota	14	Indian Territory	5
Illinois	14	District of Columbia	4
Louisiana	14	Arizona	4
Ohio	14	Colorado	4
Alabama	13	Montana	3
Missouri	12	Rhode Island	3
New York	12	Delaware	3
Tennessee	12	Maine	2
Mississippi	11	New Mexico	2
Maryland	11	Oregon	1
Massachusetts	10	Vermont	1

Frequency of excessive hourly precipitation.

Iowa	19	Massachusetts	8
Pennsylvania	17	Mississippi	8
Kansas	17	Maryland	7
North Carolina	17	Kentucky	7
Illinois	16	Wisconsin	6
Alabama	15	Colorado	6
Florida	15	New Jersey	5
Indiana	15	Missouri	5
Nebraska	15	Wyoming	4
Michigan	14	New Mexico	4
Georgia	13	West Virginia	4
New York	13	Indian Territory	4
North and South Dakota	12	Maine	3
Texas	12	Connecticut	3
Virginia	11	District of Columbia	2
Ohio	11	New Hampshire	2
Louisiana	11	Nevada	2
South Carolina	11	California	1
Tennessee	11	Montana	1
Arkansas	9	Utah	1
Minnesota	9	Vermont	1
Arizona	9		

MAXIMUM RAINFALL FROM SELF-REGISTERING GAUGES.

The following table gives the heaviest rainfall during July, 1894, for periods of 5, 10, and 60 minutes, as recorded on self-registering rain gauges at regular stations of the Weather Bureau. This record refers strictly to rainfall. About 37 stations are furnished with self-registering-float-rain gauges and 6 with the self-registering-weighing-rain-and-snow gauge. The float gauge does not record snowfall, and both forms are liable to be interrupted by snow and ice:

Maximum rainfall in one hour or less.

Station.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga.*	0.40	29	0.75	29	1.80	29
Baltimore, Md	0.25	6	0.30	6	0.44	6
Bismarck, N. Dak	0.02	27	0.04	27	0.12	27
Boston, Mass	0.35	21	0.50	21	0.73	21
Buffalo, N. Y	0.17	13	0.25	13	0.47	13
Cincinnati, Ohio	.....	.....	.....	.....	0.05	4
Chicago, Ill	0.10	20	0.17	20	0.44	20
Cleveland, Ohio	0.15	20	0.25	20	0.65	20
Denver, Colo	0.09	19	0.13	3	0.53	3
Detroit, Mich	0.50	20	0.80	20	1.01	20
Dodge City, Kans	0.30	18	0.48	18	0.78	31
Duluth, Minn	0.07	28	0.12	28	0.21	28
Eastport, Me	0.05	1	0.10	1	0.29	1
Galveston, Tex	0.35	17	0.65	17	1.84	17
Indianapolis, Ind	0.15	21	0.16	21	0.25	21
Jacksonville, Fla	0.30	11	0.45	11	1.20	11
Jupiter, Fla	0.20	9	0.35	9	0.85	9

Maximum rainfall in one hour or less—Continued.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Kansas City, Mo	0.29	4	0.50	4	1.10	4
Key West, Fla	0.19	5	0.30	5	0.58	5
Marquette, Mich	0.20	28	0.26	28	0.31	28
Memphis, Tenn	0.25	19	0.35	19, 20	0.60	19
Milwaukee, Wis	0.25	14	0.35	14	0.64	14
Nantucket, Mass	T.	15	0.01	15	0.05	15
Nashville, Tenn	0.35	31	0.55	31	1.05	26
New Orleans, La	0.40	14	0.75	14	1.70	14
New York, N. Y	0.40	14	0.40	14	0.62	6
Norfolk, Va	0.47	22	0.75	22	2.20	6
Omaha, Nebr	0.02	3	0.03	3	0.14	3
Philadelphia, Pa	0.11	24	0.15	24	0.17	24
Pittsburg, Pa	0.15	2	0.20	2	0.30	2
Portland, Me	0.12	24	0.20	24	0.61	24
Portland, Oreg	T.	14	0.01	14	0.03	14
Rochester, N. Y	0.04	2, 24	0.08	24	0.27	24
St. Louis, Mo	0.23	28	0.40	28	0.72	28
St. Paul, Minn.†	.....	.....	.....	.....	.....	.....
Salt Lake City, Utah	0.08	3	0.15	3	0.31	3
San Diego, Cal.†	.....	.....	.....	.....	.....	.....
San Francisco, Cal.†	.....	.....	.....	.....	.....	.....
Savannah, Ga	0.50	18	0.90	18	1.98	18
Seattle, Wash.†	.....	.....	.....	.....	.....	.....
Vicksburg, Miss	0.40	21	0.70	21	1.30	1-2
Washington, D. C	0.11	29	0.18	24, 29	0.33	24
Wilmington, N. C	0.40	16	0.65	16	1.83	16

*Record incomplete. † Less than 0.05 in 1 hour.

EXCEPTIONAL PRECIPITATION.

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for July, by any station, regular or voluntary, and in any year since 1871:

Exceptional monthly precipitation.

Station and state.	Amt.	Year.	Station and state.	Amt.	Year.
	Inches.			*Inches.*	
White, Tenn	28.11	1883	Wilmington, N. C	21.12	1886
Mount Washington, N. H	23.90	1884	Auburn, Ala	21.09	1887
Macon, Miss	23.87	1892			

Exceptional daily precipitation.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			*Inches.*	
Edwards, Miss	16.70	6-8, 1892	De Land, Fla	6.05	12-13, 1891
Tuscumbia, Ala	10.00	9-10, 1892	Scottsboro, Ala	6.00	16, 1894
Union Point, Ga	10.00	29, 1887	Centerville, Iowa	6.00	1, 1892
St. Andrews Bay, Fla	9.85	8-10, 1892	Opelousas, La	6.00	25-27, 1892
South Orange, N. J	8.57	30-31, 1889	Russellville, Ark	6.00	29, 1889
Columbus, Miss. b	8.30	7-8, 1892	Oberlin, Kans	5.57	26-27, 1893
Fort Barrancas, Fla	8.28	22-23, 1890	Warrensburg, Mo	5.50	5, 1893
Logan, Iowa	8.00	10, 1878	Houma, La	5.47	8-10, 1892
Okolona, Miss	7.90	8-9, 1892	Waynesboro, Ga	5.43	9-10, 1894
Minneapolis, Minn	7.80	26-27, 1892	Lake Charles, La	5.40	27, 1892
Plaquemine, La	7.75	5, 1891	Manhattan, Kans	5.38	23, 1889
Independence, Mo	7.61	14, 1885	Houma, La	5.35	25-26, 1892
Wilmington, N. C	7.33	15, 1886	Keesees Ferry, Ark	5.22	4-5, 1894
Agricultural Col., Miss.	7.24	7-8, 1892	Hardeeville, S. C	5.19	9-10, 1894
Hulmeville, Pa	7.00	26, 1879	Manchester, N. H	5.17	23-24, 1887
Marengo, Ind	7.00	23, 1890	Rock Island Ars'l, Ill	5.16	13, 1889
Lexington, Mo	6.44	4-5, 1893	Hatteras, N. C	5.16	1-2, 1894
Cheboygan, Mich	6.34	7-8, 1890	Cambridge, Md	5.12	31, 1893
Hudson, Wis	6.30	27, 1892	Maple Plains, Minn	5.11	26-27, 1892
Greenville, Miss	6.21	27-28, 1891	Oxford, Fla	5.10	27, 1893
Rocky Ford, Colo	6.20	8, 1893	Griffin, Ga	5.10	26-27, 1894
Corydon, Iowa	6.19	1-2, 1892	Lamonte, Mo	5.09	4-5, 1893
Grand Junction, Tenn	6.10	13-14, 1890	Tiffin, Ohio	5.08	20, 1894
Payson, Ariz	6.09	25-26, 1892	Edwards, Miss	5.00	7-8, 1892
Charleston, S. C	6.07?	27-28, 1890	Fort Clark, Tex	5.00	10, 1889

Exceptional precipitation for one hour or less.

Station and state.	Amount.	Time.	Date.
	Inches.	h. m.	
New Orleans, La	0.68	0 05	12, 1893
Jacksonville, Fla	0.55	0 05	8, 1893
Detroit, Mich	0.50	0 05	20, 1894
Savannah, Ga	0.50	0 05	18, 1894
Norfolk, Va	0.48	0 05	16, 1893
Do	0.47	0 05	22, 1894
Savannah, Ga	0.47	0 05	18, 1891
Galveston, Tex	0.45	0 05	12, 1893
Jupiter, Fla	0.45	0 05	21, 1891
Do	0.43	0 05	21, 1890

Exceptional precipitation for one hour or less—Continued.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Key West, Fla	0.41	0 05	23, 1893
Atlanta, Ga	0.40	0 05	29, 1894
New Orleans, La	0.40	0 05	14, 1894
New York, N. Y	0.40	0 05	14, 1894
Vicksburg, Miss	0.40	0 05	21, 1894
Wilmington, N. C	0.40	0 05	16, 1894
Boston, Mass	0.40	0 05	4, 1891
Jupiter, Fla	0.40	0 05	2, 1893
Chicago, Ill	0.40	0 05	14, 1890
Dodge City, Kans	0.40	0 05	6, 1891
Savannah, Ga	0.40	0 05	8, 1890
Washington, D. C	0.40	0 05	15, 1891
St. Paul, Minn	0.40	0 05	26, 1892
Wilmington, N. C	0.38	0 05	10, 1892
Milwaukee, Wis	0.35	0 05	15, 1893
Do	0.35	0 05	9, 1893
Boston, Mass	0.35	0 05	21, 1894
Galveston, Tex	0.35	0 05	17, 1894
Detroit, Mich	0.35	0 05	27, 1892
Nashville, Tenn	0.35	0 05	31, 1894
St. Louis, Mo	0.35	0 05	13, 1892
Tampa, Fla	0.35	0 05	7, 1892
Savannah, Ga	0.33	0 05	18, 1892
Atlanta, Ga	0.32	0 05	12, 1892
Cleveland, Ohio	0.32	0 05	24, 1892
Washington, D. C	0.32	0 05	14, 1892
Philadelphia, Pa	0.31	0 05	3, 1892
Savannah, Ga	0.30	0 05	2, 1893
Dodge City, Kans	0.30	0 05	18, 1894
Jacksonville, Fla	0.30	0 05	11, 1894
Baltimore, Md	0.30	0 05	8, 1893
Dodge City, Kans	0.30	0 05	15, 1893
Indianapolis, Ind	0.30	0 05	26, 1892
Washington, D. C	0.30	0 05	2, 1890
Norfolk, Va	0.29	0 05	2, 1892
Kansas City, Mo	0.29	0 05	4, 1894
Do	0.28	0 05	4, 1893
Salt Lake City, Utah	0.27	0 05	27, 1893
Baltimore, Md	0.25	0 05	6, 1894
Memphis, Tenn	0.25	0 05	19, 1894
Milwaukee, Wis	0.25	0 05	14, 1894
Boston, Mass	0.25	0 05	3, 1892
Memphis, Tenn	0.25	0 05	11, 1892
Atlanta, Ga	0.25	0 05	31, 1893
Cincinnati, Ohio	0.25	0 05	8, 1893
Marquette, Mich	0.25	0 05	24, 1893
New York, N. Y	0.25	0 05	3, 1892
Huron, S. Dak	1.30	0 10	26, 1885
Albany, N. Y	1.22	0 10	10, 1876
Grove Dale, Kans	1.00	0 10	17, 1893
Utica, N. Y	1.00	0 10	8, 1893
Savannah, Ga	0.92	0 10	18, 1891
Norfolk, Va	0.91	0 10	16, 1893
Savannah, Ga	0.90	0 10	18, 1894
Jacksonville, Fla	0.85	0 10	8, 1893
New Orleans, La	0.81	0 10	12, 1893
Detroit, Mich	0.80	0 10	20, 1894
Galveston, Tex	0.75	0 10	12, 1893
New Orleans, La	0.75	0 10	14, 1894
Atlanta, Ga	0.75	0 10	29, 1894
Norfolk, Va	0.75	0 10	22, 1894
St. Paul, Minn	0.70	0 10	26, 1892
Vicksburg, Miss	0.70	0 10	21, 1894
Dubuque, Iowa	0.67	0 10	2, 1889
Key West, Fla	0.65	0 10	23, 1893
Galveston, Tex	0.65	0 10	17, 1894
Wilmington, N. C	0.65	0 10	16, 1894
Jupiter, Fla	0.60	0 10	2, 1893
Wilmington, N. C	0.60	0 10	20, 1892
Dodge City, Kans	0.56	0 10	21, 1893
Nashville, Tenn	0.55	0 10	31, 1894
Washington, D. C	0.53	0 10	14, 1892
Detroit, Mich	0.52	0 10	27, 1892
Savannah, Ga	0.52	0 10	18, 1892
Boston, Mass	0.50	0 10	21, 1894
Kansas City, Mo	0.50	0 10	4, 1894
Atlanta, Ga	0.50	0 10	12, 1892
Milwaukee, Wis	0.50	0 10	15, 1893
Norfolk, Va	0.50	0 10	18, 1890
New York, N. Y	0.50	0 10	27, 1880
Tampa, Fla	0.50	0 10	7, 1892
Sandusky, Ohio	2.25	0 15	11, 1879
Portsmouth, Ohio	1.62	0 15	30, 1892
Amana, Iowa	1.56	0 15	31, 1878
New Orleans, La	1.40	0 15	6, 1889
Greenville, Miss. *b*	1.39	0 15	6, 1894
Centerville, Iowa	1.25	0 15	19, 1894
Philo, Ill	1.20	0 15	8, 1888
New York, N. Y	1.00	0 15	13, 1880
St. Matthews, S. C	1.05	0 15	17, 1894
New Market, Ala	1.08	0 15	12, 1889
Rancocas, N. J	1.00	0 15	17, 1890
St. Paul, Minn	1.00	0 15	26, 1892
Easton, N. Y	0.99	0 15	6, 1893
Amherst, Mass	2.00	0 20	16, 1879
West Leavenworth, Kans	1.90	0 20	21, 1887
New Palestine, Mo	1.52	0 20	28, 1892
Rancocas, N. J	1.25	0 20	18, 1893
Lynchburg, Va	1.00	0 20	3, 1892
Wild Rice, N. Dak	1.63	0 23	14, 1893
East Peoria, Ill	1.54	0 25	31, 1894
Black River Falls, Wis	1.47	0 25	14, 1893
Greensboro, N. C	1.35	0 25	19, 1893
Charleston, S. C	2.18	0 27	10, 1893
Logansport, Ind	3.50	0 30	7, 1879

Exceptional precipitation for one hour or less—Continued.

Station and state.	Amount.	Time.	Date.
	Inches.	*h. m.*	
Hess Road Station, N. Y	2.53	0 30	22, 1892
Wilkesbarre, Pa	2.50	0 30	15, 1890
Peoria, Ill. *b*	2.05	0 30	5, 1893
Scofield, Utah	2.01	0 30	21, 1893
Benton Harbor, Mich	2.01	0 30	14, 1890
Centerville, Iowa	1.97	0 30	22, 1894
Washington, Ark. *b*	1.68	0 30	24, 1893
Fairfield, Iowa	1.62	0 30	21, 1892
Tarpon Springs, Fla	1.58	0 30	9, 1894
Camden, N. J	1.56	0 30	31, 1894
Brag, Ga	1.55	0 30	15, 1894
Columbus, Ga	1.50	0 30	7, 1893
Newbern, N. C	1.35	0 35	20, 1892
Jacksonville, Fla	3.49	0 40	6, 1886
Sloan, N. C	2.50	0 40	2, 1893
Fort Sully, S. Dak	2.05	0 40	5, 1893
River Bend, Colo	2.00	0 40	28, 1893
Point Peter, Ga	3.20	0 45	18, 1894
Wilcox, Nebr	2.45	0 45	16, 1893
Springer, N. Mex	3.85	0 50	13, 1891
Lansing, Mich	3.40	1 00	21, 1883
Middletown, N. Y	3.02	1 00	18, 1894
Rock Island Arsenal, Ill	5.16	1 15	13, 1889
Tucson, Ariz	5.10	1 45	11, 1878

HAIL.

The following are the dates on which hail fell in the respective States:

Arizona, 10, 11, 16, 19, 20, 22, 23, 26, 27. Arkansas, 17, 18, 27. Colorado, 2 to 9, 11 to 19, 21, 25, 28 to 31. Connecticut, 14, 29, 30, 31. Illinois, 1, 2, 25, 26, 28, 31. Indiana, 1, 30. Iowa, 19, 24, 30. Kansas, 3, 5, 7, 18, 29. Kentucky, 1, 2, 3. Louisiana, 1, 2, 3, 6, 8. Maine, 25. Maryland, 3, 6, 26. Massachusetts, 2, 14, 16, 17, 21, 25, 29. Michigan, 1, 19, 28. Minnesota, 28, 30, 31. Mississippi, 25. Missouri, 1, 2, 4, 28, 29. Montana, 3, 5, 12, 16, 17, 24. Nebraska, 8, 29, 30. Nevada, 1, 3, 16, 23, 24, 30, 31. New Hampshire, 2, 14, 25. New Jersey, 6, 16, 29, 31. New Mexico, 3, 8, 13, 20. New York, 6, 25, 29. North Carolina, 15, 23. Ohio, 2, 6, 20. Oklahoma, 16, 28. Oregon, 3, 14, 19. Pennsylvania, 16, 20, 23, 26, 31. Rhode Island, 14. South Dakota, 3, 5 to 8, 11, 13, 14, 18, 21, 24, 25, 26. Tennessee, 1, 2, 26. Utah, 5, 13. Virginia, 1, 3, 15, 20, 29. West Virginia, 1, 2. Wisconsin, 5, 14, 30, 31. Wyoming, 4, 5, 18, 19.

DROUGHT.

The prairie and forest fires of July and subsequent months have thrown into the atmosphere an unusual and immense quantity of moisture, but have not resulted in any extensive rain as far as known. Evidently the mere addition of moisture to the atmosphere, or its subsequent cooling into haze, fog, and clouds, does not suffice to make rain. The summer of 1894 has presented a series of unusual local droughts, amounting in fact to a general drought over the northern half of the United States.

The Monthly Review of the Iowa Weather and Crop Service states that July, 1894, has become historic, breaking all previous records, as the driest month ever experienced in Iowa; the culminating period of the drought was on the 25th, 26th, and 27th, during which the wind attained a high velocity and the temperatures, at voluntary stations, varied from 100° to 109°; the mean temperature was not always the warmest, but the drought was the more severe and protracted and was especially felt because the rainfall of the preceding June was also below the normal.

The July Monthly Bulletin of the Minnesota Weather Service states that notwithstanding the deficient rainfall for June still at the beginning of the month the drought had not proved injurious, but the excessive heat and great deficiency of rainfall during July did great injury to the crops. The temperature of the 26th was the highest for at least thirty-three years.

The Monthly Bulletin of the Missouri Weather Service for July says that in the center and northern portions of the State the month was characterized by unusually high temperatures, a high percentage of sunshine, and drought conditions, that in some localities were the severest that have been experienced for many years, and proved most disastrous to agricultural interests. The hot winds that prevailed on the 24th, 25th, and 26th caused the standing corn to fire badly, and many fields were utterly ruined except for fodder.

The July report of the Ohio Weather and Crop Service notes five days of general and heavy rains and seventeen days of light local rains; the greatest local monthly precipitation was was 5.16 and the least 0.05. Notwithstanding this rain the report states the average precipitation was deficient, and that at the close of the month the crops were rapidly drying up.

The July Bulletin of the Oklahoma Weather Service states that in Oklahoma City rain fell on four days only, and the total amount was about one-third of the normal. At the close of the month rain was badly needed.

The Monthly Weather Review of the Pennsylvania State Weather Service says: "The extremely warm and dry weather, with high percentage of sunshine, continuing throughout the entire month, produced a general drought."

The Monthly Bulletin of the Kentucky Weather Service for the month of July says: "There was a deficiency of precipitation in nearly all sections of the State. A very serious drought set in and continued through the month."

The Monthly Meteorological Summary of the South Dakota Weather Service for July says: "The month was excessively warm, with hardly any precipitation. All the crops suffered severely from the drought and high winds."

WIND.

PREVAILING WINDS.

The prevailing winds for July, 1894, viz, those that were recorded most frequently at Weather Bureau stations, are shown in Tables I and VIII; they are not given on Chart II, as has hitherto been the custom, but the resultant winds are published instead.

RESULTANT WINDS.

The resultant winds for the current month, as deduced from the hourly records by self-registers at about 67 regular Weather Bureau stations, are given in Table VIII. Other resultants, deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, in connection with the isobars based on the same system of simultaneous observation; the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a wind of average velocity; these figures (or the ratio between them and the total number of observations in this month) indicate the extent to which winds from different directions counterbalanced each other. The original north, south, east, and west components are given in detail in Table IX.

During July the resultant movement was generally from the southwest in New England, the middle and south Atlantic States, the Florida Peninsula, Ohio Valley and Tennessee. lower Lake region, North Dakota, upper Mississippi and Missouri valleys.

HIGH WINDS.

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles.				*Miles.*	
Amarillo, Tex	30	54	n.	Little Rock, Ark	1	51	ne.
Chicago, Ill	12	50	sw.	Pikes Peak, Colo	27	72	w.
Huron, S. Dak	11	60	sw.				

LOCAL STORMS.

Destructive or severe local storms were reported as follows:

1st.—Waynesboro, Va., 2 persons killed and 1 injured by lightning. Adairsville, Ga., horse killed by lightning. Greenville, Miss., 1 person killed by lightning. Glen Allan, Miss., 1 person killed by lightning. Memphis, Tenn., 1 person killed by lightning. Golconda, Ill., hailstorm. Olney, Ill., and Delphi, Ind., thunderstorms. Greenville, Mo., hailstorm.

2d.—Fall River and Siasconset, Mass., thunderstorms. Near Hess Road Station, N. Y., horse killed by lightning. New Cumberland, W. Va., thunderstorm. Pensacola, Fla., horse killed by lightning. Nashville, Tenn., windstorm. Golconda, Ill., hailstorm.

3d.—Lynchburg, Va., thunderstorm. Radersburg, Mont., hailstorm. Salt Lake City, Utah, thunderstorm.

4th.—Kansas City and Palestine, Mo., thunderstorms. Near Houston, Mo., 2 horses killed by lightning. Table Rock, Colo., thunderstorm.

5th.—Marysville, Mont., 4 horses killed by lightning. Spokane, Wash., thunderstorm.

6th.—Elmira, N. Y., hailstorm. Stephens City, Va., stock killed by lightning. Lovilia, Iowa, thunderstorm.

7th.—Independence, Kans., hailstorm. Southeast of Miles City, Mont., man and horse killed by lightning. Sixteen miles southwest of Spokane, Wash., man killed by lightning.

8th.—North Platte, Nebr., horse killed by lightning.

9th.—Hawkinsville, Ga., thunderstorm. Gardnerville, Nev., several persons stunned and a horse killed by lightning.

10th.—Detroit, Mich, thunderstorm.

11th.—Huron, S. Dak., windstorm.

13th.—Tampa, Fla., and Binola, Ohio, thunderstorms. Near Bellefontaine, Ohio, a boy and horse killed by lightning.

14th.—New York, N. Y., 1 person killed. Middletown and Wappingers Falls, N. Y., thunderstorms. Eldorado, Kans., stock killed by lightning.

15th.—Hillsboro, N. Y., thunderstorm. Winnview, Okla., 3 persons injured by lightning. Levan, Utah, man killed by lightning.

16th.—At Algiers, La., 2 persons killed and 19 stunned by lightning. Lehigh, Ind. T., 1 person fatally injured by lightning.

18th.—Point Peter, Ga., rainstorm. Little Rock, Ark., thunderstorm.

19th.—Louisville, Ky., and Gainesville, Tex., thunderstorms. Burr Oak, Mich., 3 persons stunned by lightning.

20th.—Niagara County, N. Y., windstorms. Tiffin, Ohio, thunderstorm. Rawsonville, N. Y., thunderstorm.

21st.—Boston, Mass., thunderstorm. Dover, Del., 2 persons injured and a horse killed by lightning. Norfolk, Va., 2 persons killed by lightning.

24th.—Near Detroit, Mich., thunderstorm. Port Huron, Mich., horse killed.

25th.—South Bend, Ind., thunderstorm.

26th.—Donaldsonville, La., stock killed by lightning. Lexington, Ky., thunderstorm. Concordia, Kans., windstorm.

27th.—Corning, Ark., hailstorm. Collegeville, Minn., windstorm.

28th.—Brookfield and Honeymead Brook, N. Y., thunderstorms. Near St. Charles, Mo., hailstorm. Carthage, Mo., thunderstorm. Belle Rose, La., 2 horses killed by lightning.

29th.—Cornwall, Vt., 2 horses killed by lightning. Manchester, N. H., thunderstorm. New Haven, Conn., 2 persons injured by lightning. Near Newton, N. J., windstorm. Stanardsville, Va., hailstorm. Atlanta, Ga., and Nashville, Tenn., thunderstorms. Springdale, Tenn., and Ellsworth, Ohio., windstorms. Grovedale, Mo., hailstorm. Near Heber City, Utah, thunderstorm.

30th.—Middletown, N. Y., 4 persons stunned by lightning. Scotchtown, N. Y., 2 cows killed by lightning. Howells, N. Y., and Granite Falls, Minn., thunderstorms. Luverne, Minn., stock killed by lightning. Morris, Minn., hailstorm.

31st.—Glastonbury and Weathersfield, Conn., hailstorms. Fleming, N. J., thunderstorm. Pensacola, Fla., one person stunned by lightning. Brooksville, Fla., and Nashville, Tenn., thunderstorms. Litchfield, Ill., windstorm. Steffenville, Mo., stock killed by lightning.

INLAND NAVIGATION.

STAGE OF WATER IN RIVERS.

The following table shows the danger point and the highest and lowest stages for the month of July, 1894:

Heights of rivers above low-water mark, July, 1894.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
Red River.	*Feet.*	*Feet.*		*Feet.*		*Feet.*
Shreveport, La.	29.2	5.5	1	−1.8	31	7.3
Arkansas River.						
Fort Smith, Ark.	22.0	10.7	1	1.2	29, 31	9.5
Little Rock, Ark.	23.0	11.4	5	3.9	30, 31	7.5
Missouri River.						
Fort Buford, N. Dak.	25.0	.....	.....	.....	.....	.....
Bismarck, N. Dak.	75.0	.....	.....	.....	.....	.....
Pierre, S. Dak.	13.0	.....	.....	.....	.....	.....
Sioux City, Iowa.	18.7	14.2	1	11.2	30, 31	3.0
Omaha, Nebr.	18.0	14.0	1	11.0	31	3.0
Kansas City, Mo.	21.0	19.6	3	13.4	31	6.2
Mississippi River.						
St. Paul, Minn.	14.0	2.8	1, 2	0.2	30	2.6
La Crosse, Wis.	10.0	4.2	1	1.3	31	2.9
Dubuque, Iowa.	16.0	4.7	1, 2	1.2	31	3.5
Davenport, Iowa.	15.0	3.3	1	0.6	31	2.7
Keokuk, Iowa.	14.0	3.5	1	0.3	31	3.2
Hannibal, Mo.	17.0	4.1	1	1.1	29, 31	3.0
St. Louis, Mo.	30.0	17.0	1	8.8	31	8.2
Cairo, Ill.	40.0	18.3	1	9.7	30	8.6
Memphis, Tenn.	33.0	12.2	3, 4	4.9	31	7.3
Vicksburg, Miss.	41.0	17.0	1, 10	7.4	31	9.6
New Orleans, La.	13.0	5.7	1	3.9	25	1.8
Ohio River.						
Parkersburg, W. Va.	38.0	4.0	2, 3	0.6	22, 29	3.4
Cincinnati, Ohio.	45.0	8.0	2, 3	4.1	27, 28	3.9
Louisville, Ky.	24.0	4.7	3, 5	2.7	26–31	2.0
Cumberland River.						
Nashville, Tenn.	40.0	6.2	3	2.0	20	4.2

Heights of rivers—Continued.

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Height.	Date.	Height.	Date.	
Tennessee River.	*Feet.*	*Feet.*		*Feet.*		*Feet.*
Chattanooga, Tenn.	33.0	4.4	1, 4	1.8	17	2.6
Knoxville, Tenn.	29.0	.....	.....	.....	.....	.....
Monongahela River.						
Pittsburg, Pa.	22.0	6.0	27, 29	4.5	7	1.5
Savannah River.						
Augusta, Ga.	32.6	16.6	31	4.9	16	11.7
Willamette River.						
Portland, Oregon.	15.0	23.0	1	12.4	31	10.6
Susquehanna River.						
Harrisburg, Pa.	17.0	.....	.....	.....	.....	.....
Alabama River.						
Montgomery, Ala.	48.0	2.7	25	0.8	3-5, 18, 19	1.9
James River.						
Lynchburg, Va.	18.0	1.0	1	0.0	8–22, 26–31	1.0
Sacramento River.						
Red Bluff, Cal.	22.0	1.8	1, 2	1.0	28–31	0.8
Sacramento, Cal.	25.0	15.6	1	9.6	31	6.0
Des Moines River.						
Des Moines, Iowa.	19.0	3.8	1, 2	3.1	30	0.7

FLOODS.

The above table shows that the flood in the Fraser and Willamette rivers, which had risen above the danger line at Portland, Oreg., during June, has subsided, but that they were, on the 31st, only a little below the danger line. No other floods have been reported. In many cases the rivers are unusually low, and river navigation was generally suspended in the upper Ohio and Mississippi.

ATMOSPHERIC ELECTRICITY.

GENERAL STATISTICS.

The table on page 290 shows in detail for July, 1894, the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month.

THUNDERSTORMS.

A mention of the more severe thunderstorms reported during the month is given under "Local storms." The dates on which reports of thunderstorms were most numerous were the 1st, 6th, 13th to 21st, 29th to 31st.

The States where thunderstorm reports were most numerous were: Colorado, Florida, Massachusetts, North Carolina, Ohio, Pennsylvania, and South Carolina.

The States where the dates of thunderstorms were most frequent were: Colorado and Florida, where they were recorded every day in the month, and Louisiana, South Carolina, and Texas, where they occurred on twenty-eight days.

AURORAS.

The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four days preceding and following the date of full moon, viz, from the 13th to the 21st, inclusive. On the remaining twenty-two days of the month 191 reports were received, or an average of 9 per day. The dates on which the reported number especially exceeded this average were the 1st, 74; 7th, 33; 28th, 20.

The States from which auroras were reported by a large percentage of observers were: Delaware, Iowa, Maine, Massachusetts, Minnesota, Montana, New Hampshire, North Dakota, Vermont, and Wisconsin.

DAMAGE BY LIGHTNING.

The following statistics of the damage done by lightning in July, so far as reported by the observers of this Bureau, are furnished by Mr. Alexander McAdie:

Thunderstorms and auroras, July, 1894.

States.	No. of stations.		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
Alabama	52	T.	1	1	2	2	2	5	1	....	1	....	....	....	1	2	1	2	1	1	....	1	....	1	....	....	1	2	3	2	4	1	1	39 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Arizona	49	T.	8	6	5	3	....	....	1	4	6	5	4	5	1	....	2	3	5	3	3	1	2	6	1	2	....	2	5	2	2	1	3	91 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Arkansas	46	T.	5	2	....	5	6	1	1	....	....	....	....	....	....	2	6	2	4	5	3	5	....	....	....	....	....	....	3	1	1	1	2	55 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
California	307	T.	6	1	2	....	....	....	....	....	1	4	2	1	2	....	1	....	....	1	....	....	....	....	1	....	....	....	....	....	1	....	....	23 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Colorado	82	T.	1	3	13	13	17	16	9	4	5	3	4	11	15	14	6	5	8	17	9	3	6	5	1	2	8	4	5	7	5	8	9	236 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Connecticut	24	T.	3	....	6	7	....	3	....	....	....	....	....	....	....	11	4	1	1	4	....	....	5	1	....	....	....	....	2	4	11	....	4	67 T.
		A.	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	2 A.
Delaware	6	T.	1	....	1	1	....	1	....	....	....	....	....	....	....	1	1	1	....	....	....	....	2	....	....	....	....	....	1	....	1	....	1	12 T.
		A.	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	4 A.
District of Columbia	4	T.	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	1	....	....	....	....	1	....	....	....	....	....	....	....	1	....	1	6 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Florida	34	T.	10	8	7	7	7	10	4	10	13	13	8	7	9	11	10	8	9	6	8	10	12	7	13	12	11	9	6	6	9	9	12	281 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Georgia	64	T.	3	4	2	1	3	5	1	1	2	....	....	....	....	2	4	4	5	5	5	7	3	4	....	1	1	3	....	....	3	9	6	84 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Idaho	23	T.	....	3	1	3	....	....	3	....	....	1	....	....	....	1	1	1	....	....	....	....	....	....	1	2	....	1	....	....	....	1	....	19 T.
		A.	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Illinois	58	T.	9	1	....	2	....	....	....	....	....	....	....	....	1	....	....	1	1	5	10	10	....	....	....	5	2	1	7	14	8	2	7	86 T.
		A.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Indiana	42	T.	4	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	2	6	7	....	....	1	3	2	....	....	....	....	....	1	28 T.
		A.	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
Indian Territory	7	T.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	1	....	....	1	....	....	....	....	....	....	....	1	....	....	....	6 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Iowa	80	T.	2	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	14	1	....	2	8	3	....	1	2	11	1	9	18	74 T.
		A.	9	1	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	15 A.
Kansas	74	T.	2	....	5	4	1	1	2	1	1	....	....	....	....	5	7	2	....	2	10	4	....	....	3	....	....	1	.. .	7	10	1	7	76 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1 A.
Kentucky	39	T.	2	4	....	....	1	....	....	....	....	....	....	....	....	4	3	4	2	4	6	5	1	....	2	1	....	....	....	4	2	4	3	52 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Louisiana	53	T.	3	7	16	6	8	10	11	12	6	....	....	4	9	10	7	12	6	8	5	11	10	7	1	1	....	10	3	10	8	10	3	224 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Maine	18	T.	2	....	....	3	1	1	1	1	1	1	2	....	2	3	4	1	....	....	....	....	6	....	....	....	0	1	....	....	4	1	....	41 T.
		A.	....	....	....	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	1	....	....	....	....	4 A.
Maryland	29	T.	1	1	2	2	....	9	....	....	....	....	....	....	....	4	1	3	3	....	....	2	4	....	1	3	....	1	3	3	7	9	4	63 T.
		A.	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2 A.
Massachusetts	85	T.	3	4	14	10	....	....	1	....	....	2	....	1	....	20	6	14	2	5	....	....	23	2	....	1	11	....	....	2	24	....	5	150 T.
		A.	6	1	....	....	....	....	2	....	2	....	1	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	6	....	....	....	....	20 A.
Michigan	83	T.	5	1	....	....	2	....	....	....	6	4	3	....	....	2	2	....	....	5	10	1	....	....	....	13	2	2	2	4	2	....	1	66 T.
		A.	4	....	....	2	....	....	3	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	11 A.
Minnesota	72	T.	....	....	....	2	7	....	....	5	1	3	5	5	1	....	....	....	3	6	....	....	3	11	6	2	7	13	9	1	14	5	109 T.
		A.	16	....	1	3	3	....	9	1	1	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	1	1	....	....	....	....	39 A.
Mississippi	50	T.	5	6	2	3	5	9	2	6	3	....	....	....	4	9	5	5	6	4	5	8	5	....	....	....	....	5	2	3	4	3	5	114 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Missouri	100	T.	13	1	3	24	2	....	....	3	....	....	....	....	1	3	10	2	10	14	24	13	1	....	3	1	....	....	8	21	31	6	29	223 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Montana	30	T.	....	....	1	3	3	1	2	....	....	....	1	2	....	....	1	4	1	....	2	....	....	1	....	3	1	....	....	....	....	....	....	26 T.
		A.	1	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	....	....	....	....	7 A.
Nebraska	67	T.	....	3	6	....	1	3	2	5	....	1	1	....	....	1	2	....	....	4	1	....	....	3	4	....	....	1	2	2	10	5	57 T.
		A.	3	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	5 A.
Nevada	50	T.	3	3	4	3	2	2	....	....	4	5	4	3	6	5	4	7	4	1	4	2	4	4	5	2	....	....	....	....	2	3	3	89 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
New Hampshire	28	T.	3	5	2	4	....	9	....	....	1	3	2	....	3	3	4	1	....	....	....	1	3	....	....	1	8	....	....	1	11	1	....	66 T.
		A.	3	....	....	....	....	....	1	....	1	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	14 A.
New Jersey	59	T.	....	....	....	2	....	12	....	....	....	1	....	2	....	9	1	12	3	1	....	1	14	1	....	....	....	12	....	8	16	1	14	110 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	2 A.
New Mexico	31	T.	....	1	1	....	1	1	....	1	1	1	1	....	1	....	....	....	1	1	....	2	2	....	1	....	1	....	....	1	....	....	....	22 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
New York	81	T.	1	12	6	5	....	16	1	....	....	4	4	....	11	6	6	1	1	2	....	6	6	....	1	....	6	1	1	11	9	2	2	121 T.
		A.	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....	....	....	....	6 A.
North Carolina	60	T.	6	6	8	4	4	8	2	....	....	....	....	....	3	15	10	7	4	3	2	9	13	7	3	1	6	4	2	4	13	10	154 T.
		A.	....	....	....	....	1	....	1	....	....	....	....	....	1	....	....	....	2	3	....	1	2	..	....	....	....	2	3	1	....	....	....	1	23 T.
North Dakota	34	T.	5	....	....	2	....	1	5	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	2	....	....	....	....	18 A.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Ohio	140	T.	14	19	....	7	1	15	....	....	....	....	4	20	7	....	1	2	....	4	35	5	....	8	6	7	1	....	5	28	1	....	190 T.
		A.	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	4 A.
Oklahoma	17	T.	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	2	1	3	....	....	....	....	....	....	....	....	1	2	....	....	10 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Oregon	65	T.	2	2	....	4	....	....	4	....	....	2	4	3	10	8	2	....	1	3	....	....	....	....	1	....	....	....	....	....	....	....	....	46 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Pennsylvania	76	T.	13	9	1	2	....	21	....	....	....	....	....	....	3	6	2	7	5	3	1	17	10	1	1	9	1	7	5	10	25	3	8	170 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Rhode Island	8	T.	....	....	2	....	....	....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	3	10 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
South Carolina	46	T.	7	7	5	2	14	10	2	1	4	1	....	....	....	4	6	8	8	7	2	6	4	6	4	6	7	9	2	2	7	11	2	154 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
South Dakota	42	T.	....	3	....	1	4	3	2	....	....	3	1	2	2	1	....	....	2	4	....	....	2	2	1	....	1	5	2	....	1	4	3	49 T.
		A.	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3 A.
Tennessee	40	T.	3	3	1	3	2	1	....	....	....	....	1	1	4	8	4	2	8	4	6	....	....	2	....	....	3	3	5	6	7	3	80 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Texas	86	T.	....	3	1	4	....	5	7	2	3	2	1	....	1	3	1	3	4	4	2	2	6	4	1	2	....	2	....	1	3	2	2	71 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Utah	41	T.	....	....	2	3	2	....	1	....	....	2	4	1	3	1	3	3	....	....	....	....	1	2	....	1	....	....	....	1	2	1	2	35 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Vermont	15	T.	2	4	3	2	....	8	....	....	....	....	4	1	5	1	3	1	2	....	1	4	1	1	....	3	....	....	2	4	1	....	53 T.
		A.	2	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	3	....	....	....	9 A.
Virginia	42	T.	4	2	2	....	....	3	1	....	....	....	....	....	....	4	4	3	2	....	1	5	1	2	....	....	4	1	1	8	5	2	55 T.
		A.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
Washington	43	T.	....	....	....	5	3	....	3	....	....	....	....	....	....	1	4	1	....	....	3	....	1	....	....	....	....	....	....	....	1	1	....	23 T.
		A.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1 A.
West Virginia	38	T.	....	5	2	1	....	....	....	....	....	....	....	....	....	1	4	....	4	....	....	3	2	....	1	....	....	1	2	1	5	5	....	37 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Wisconsin	63	T.	....	....	....	1	4	....	....	2	1	....	4	....	1	15	4	1	....	....	14	4	....	....	2	3	....	....	....	15	....	6	5	82 T.
		A.	17	1	....	1	2	....	6	2	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	32 A.
Wyoming	13	T.	....	1	1	....	1	1	....	1	....	....	1	....	....	....	....	1	....	1	....	....	1	1	....	....	1	....	....	....	....	....	....	11 T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0 A.
Sums	2,693	T.	147	141	129	154	106	226	66	56	61	60	58	57	113	190	162	147	117	134	165	189	163	78	86	92	83	103	89	81	277	168	294	3969 T.
		A.	74	4	2	9	5	3	33	7	4	2	3	1	0	2	0	0	0	2	2	5	3	1	1	1	2	4	1	20	4	3	1	205 A.

During July, 1894, 59 lives were lost and 94 persons injured; 41 barns, with a minimum loss of $45,000, were struck; 33 dwellings, 12 churches, 2 academies, 3 mills or factories, and 2 railroad depots were struck; 24 horses, 13 cows, 5 mules, and 6 sheep were killed.

For purposes of comparison Mr. McAdie gives the following statement of the deaths due to lightning, so far as collected by the U. S. Weather Bureau, for the month of July during successive years, viz: 1890, 55; 1891, 52; 1892, 67; 1893, 73; 1894, 59.

OBSERVATIONS ON THE GREAT LAKES.

REPORTS FROM VESSELS.

The Lake Marine Section of the Forecast Division has received reports from the captains of 63 vessels navigating the Great Lakes. The following miscellaneous items are extracted from their reports:

Capt. Wm. Thorne, steamship *North Star*, 30th, aurora seen while off White Fish Point; first seen at 10.30 p. m. and continued for about one hour.

Capt. J. L. Weeks, steamship *City of Genoa*, 7th, buoy out of place in Sault River. 30th, Duck Island, Sault River, red buoy gone.

Capt. E. T. Rattray, steamship *Specular*, 9 p. m., 7th, to 3 a. m., 8th, northern lights in northern Lake Michigan.

Capt. W. S. Hoag, *Barge* **130**, 1st, eastern Lake Superior, northern lights.

Capt. F. A. Graves, steamship *Matoa*, 2d, Middle Island, northern lights.

Capt. Donald McLean, steamship *City of Duluth*, 7th, southeast Lake Superior, northern lights.

Capt. D. Q. Bordeaux, steamship *H. J. Jewett*, 7th, Straits of Mackinac, northern lights.

Capt. G. B. Mallory, steamship *Mariposa*, 30th, eastern Lake Superior, northern lights from 9.30 to 11 p. m.

Capt. H. Zealand, steamship *Simon Lanzell*, 1st, western Lake Superior, northern lights.

Capt. Thos. Hackett, steamship *Volunteer*, 5th, Lake Erie, northern lights; also 7th, in St. Clair River, northern lights.

Capt. R. J. Cowley, steamship *Roumania*, 7th, brilliant aurora near Mackinac Island.

Capt. W. P. Garden, steamship *Tioga*, 1st, southern Lake Michigan, northern lights.

REPORTS FROM U. S. LIFE-SAVING STATIONS.

Through the co-operation of the General Superintendent of the Life-Saving Service and the Secretary of the Treasury, the Weather Bureau has received monthly reports for the month of June from the keepers of 33 U. S. Life-Saving Stations on the Great Lakes.

SUNSHINE AND CLOUDINESS.

GENERAL REMARKS.

The quantity of sunshine, and therefore of heat, received by the atmosphere is a fundamental factor in meteorology; the quantity received by the atmosphere as a whole is very nearly constant from year to year, but the proportion received by the surface of the earth depends largely upon the distribution of cloudiness. The sunshine is now recorded automatically at about 38 regular stations of the Weather Bureau, either by its photographic or its thermal effects. The cloudiness is recorded by personal observations at all stations and is given in the column of "average cloudiness" in Table I.

SUNSHINE.

An instrumental record of sunshine has been kept during the month at 17 stations by means of the photographic sunshine recorder and at 21 stations by means of the thermometric sunshine recorder; the results of these observations are given in Table IV, for each hour of local mean time (not seventy-fifth meridian time). The stations recording the largest percentages of sunshine between the hours of 11 a. m. and 1 p. m. were: Baltimore, 94; Chicago, 95; Columbus, 94; Des Moines, 96.5; Detroit, 100; Salt Lake City, 96; San Francisco, 96.5; Tucson, 96.

The stations having the least percentage between these hours were: New Orleans, 58; Savannah, 55; Wilmington, 51.

The general average percentage for the whole month is given in the next to the last column of Table IV. The highest percentages were: Baltimore and Chicago, 85; Salt Lake City, 83; Columbus, Ohio, Des Moines, St. Louis, and Tucson, 82. The lowest percentages were: Wilmington, 36; Savannah, 48; New Orleans, 58.

CLEAR SKY.

The average cloudiness between sunrise and sunset, as based on numerous personal observations, is given for each Weather Bureau station in Table I; the complement of this average cloudiness gives the observer's estimated percentage of clear sky, and these latter numbers are given in the last column of Table IV.

COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the duration of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of area of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimates of percentages of area of clear sky; the average excess for this month is 9 per cent for photographic records and 14 per cent for thermometric records:

Difference between instrumental and personal observations of sunshine.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Tucson, Ariz	82	55	27	Baltimore, Md	85	69	16
Spokane, Wash	80	58	22	Chicago, Ill	85	81	4
Portland, Oreg	79	77	2	Salt Lake City, Utah	83	63	20
Cincinnati, Ohio	76	60	16	Columbus, Ohio	82	58	24
Cleveland, Ohio	76	58	18	Des Moines, Iowa	82	72	10
Helena, Mont	75	69	6	St. Louis, Mo	82	62	20
Dodge City, Kans	74	66	8	Detroit, Mich	79	68	11
Kansas City, Mo	74	67	7	Key West, Fla	78	55	23
Washington, D. C	74	65	9	Philadelphia, Pa	75	54	21
Santa Fe, N. Mex	72	55	17	Boston, Mass	73	49	24
Bismarck, N. Dak	71	75	— 4	Buffalo, N. Y	72	53	19
Denver, Colo	71	55	16	Little Rock, Ark	72	59	13
Galveston, Tex	71	71	0	New Haven, Conn	71	62	9
Memphis, Tenn	69	67	2	Vicksburg, Miss	69	70	— 1
San Diego, Cal	68	73	— 5	Colorado Springs, Colo	63	47	16
San Francisco, Cal	68	65	3	Portland, Me	63	41	22
Eastport, Me	63	52	11	New York, N. Y	62	48	14
Savannah, Ga	48	38	10	New Orleans, La	58	57	1
				Wilmington, N. C	36	45	— 9
				Rochester, N. Y	.....	59	.....

NOTES BY THE EDITOR.

DATES OF FIRST SNOWFALL.

The following table has been constructed in continuation of the similar table in the WEATHER REVIEW for September, 1886, p. 254; it shows the dates on which snow first fell to an amount sufficient to be recorded as a trace at the regular stations of the Signal Service or Weather Bureau. Cases in which snow is reported as falling "in the mountains near by" are not included. The mountain stations of Pikes Peak and Mount Washington are omitted, since, although snow appears nearly every month of the year at these places, yet this is to be considered as indicating the condition of the air in the cloud regions into which their summits penetrate, rather than the climatic conditions proper to the lower arable earth, where snowfall is so important to agriculture.

A chart showing the total snowfall from July 1, 1893, to June 30, 1894, is being prepared for publication in the REVIEW, when the important relations between snowfall and topography, geology, forestry, agriculture, water supply, and other matters will be mentioned.

Dates of first snowfall at Weather Bureau stations.

Station.	1886-'87.	1887-'88.	1888-'89.	1889-'90.	1890-'91.	1891-'92.	1892-'93.	1893-'94.
New England.								
Eastport, Me	Nov. 13	Nov. 5	Oct. 24	Oct. 28	Nov. 4	Oct. 23	Nov. 6	Nov. 16
Portland, Me	Nov. 13	Nov. 11	Oct. 14	Nov. 10	Nov. 11	Nov. 20	Nov. 2	Nov. 15
Boston, Mass	Nov. 7	Nov. 11	Nov. 17	Nov. 27	Nov. 11	Oct. 23	Nov. 5	Nov. 15
New Haven, Conn	Nov. 7	Nov. 11	Nov. 25	Oct. 23	Nov. 12	Oct. 13	Nov. 5	Nov. 15
New London, Conn	Nov. 7	Nov. 11	Oct. 9	Oct. 25	Nov. 23	Oct. 23	Nov. 27	Nov. 15
Middle Atlantic States.								
Albany, N. Y	Nov. 6	Nov. 11	Oct. 9	Nov. 27	Nov. 3	Oct. 23	Nov. 5	Oct. 29
New York, N. Y	Nov. 7	Nov. 11	Nov. 25	Nov. 30	Nov. 4	Nov. 28	Nov. 9	Dec. 3
Philadelphia, Pa	Nov. 6	Nov. 11	Nov. 24	Oct. 23	Nov. 20	Nov. 28	Nov. 5	Nov. 20
Atlantic City, N. J	Dec. 4	Dec. 1	Nov. 23	Dec. 4	Nov. 20	Nov. 28	Nov. 23	Dec. 4
Baltimore, Md	Nov. 13	Dec. 17	Nov. 24	Oct. 23	Oct. 19	Nov. 5	Nov. 9	Nov. 15
Washington, D. C	Nov. 25	Nov. 11	Nov. 26	Oct. 23	Nov. 28	Nov. 5	Oct. 5	Nov. 15
Cape Henry, Va	Dec. 4	*c*	*c*	*c*	*c*	Nov. 28	Nov. 23	Nov. 24
Lynchburg, Va	Dec. 4	Dec. 2	Nov. 26	Nov. 17	Dec. 8	Nov. 28	Nov. 26	Nov. 15
Norfolk, Va	Dec. 4	Jan. 18	Feb. 11	Jan. 23	Dec. 8	Nov. 28	Nov. 23	Nov. 24
South Atlantic States.								
Hatteras, N. C	*c*	*c*	*c*	Mar. 16	*c*	Nov. 28	Jan. 4	Feb. 5
Kittyhawk, N. C	Dec. 4	*c*	*c*	*c*	*c*	Nov. 28	Dec. 26	Nov. 24
Wilmington, N. C	Dec. 6	*c*	Feb. 11	Mar. 2	*c*	Nov. 28	Dec. 26	Jan. 1
Charleston, S. C	Dec. 6	*c*	Feb. 20	Mar. 2	*c*	Nov. 28	Dec. 27	Feb. 25
Augusta, Ga	Dec. 5	*c*	Jan. 28	Mar. 2	*c*	Nov. 29	Dec. 27	*c*
Savannah, Ga	Dec. 6	*c*	Jan. 28	Mar. 2	*c*	*c*	Dec. 27	*c*
Jacksonville, Fla	*c*	*c*	*c*	*c*	*c*	*c*	Dec. 27	*c*
Pensacola, Fla	Dec. 5	*c*	Jan. 28	*c*	*c*	Jan. 14	Dec. 26	Feb. 25
Florida Peninsula.								
Key West, Fla	*a*	*c*	*c*	*c*	*c*	*c*	*c*	*c*
East Gulf States.								
Atlanta, Ga	Dec. 3	Feb. 27	Jan. 28	Mar. 7	Dec. 16	Jan. 6	Dec. 26	Dec. 17
Mobile, Ala	Dec. 5	*c*	Jan. 28	*c*	*c*	Jan. 14	Dec. 26	Feb. 23
Montgomery, Ala	Dec. 5	Dec. 26	Jan. 28	*c*	Feb. 26	Jan. 5	Dec. 26	Feb. 25
Vicksburg, Miss	Dec. 5	Dec. 24	Jan. 28	*c*	Feb. 26	Jan. 6	Dec. 26	Jan. 24
New Orleans, La	Dec. 5	*c*	*c*	*c*	*c*	Jan. 14	Jan. 19	Feb. 25
Western Gulf States.								
Shreveport, La	Nov. 17	Dec. 22	*c*	*c*	*c*	Jan. 12	Dec. 26	Feb. 24
Little Rock, Ark	Dec. 4	Dec. 16	Jan. 28	*c*	Feb. 9	Nov. 20	Nov. 9	Dec. 30
Galveston, Tex	*c*	Jan. 15	*c*	*c*	*c*	Jan. 19	*c*	*c*
Palestine, Tex	Nov. 17	Dec. 22	Jan. 27	*c*	Mar. 8	Jan. 12	Dec. 26	Feb. 11
San Antonio, Tex	*c*	Dec. 23	*c*	*c*	*c*	Jan. 18	*c*	*c*
Rio Grande Valley.								
Brownsville, Tex	*c*	Jan. 15	*c*	*c*	*c*	*c*	*c*	*c*
Rio Grande City, Tex	*c*	Dec. 23	*c*	*c*	*c*	*c*	*c*	*c*
Ohio Valley & Tennessee.								
Knoxville, Tenn	Dec. 4	Dec. 17	Dec. 12	Nov. 19	Dec. 16	Jan. 2	Nov. 9	Dec. 17
Memphis, Tenn	Nov. 17	Dec. 26	Jan. 18	Nov. 17	Jan. 12	Nov. 22	Nov. 9	Dec. 30
Nashville, Tenn	Nov. 17	Nov. 27	Dec. 3	Nov. 18	Dec. 17	Nov. 20	Nov. 9	Dec. 3
Louisville, Ky	Nov. 6	Nov. 27	Nov. 16	Nov. 18	Dec. 8	Nov. 3	Nov. 9	Dec. 2
Indianapolis, Ind	Oct. 27	Oct. 29	Nov. 16	Nov. 17	Oct. 29	Nov. 14	Nov. 9	Nov. 15
Cincinnati, Ohio	Nov. 6	Nov. 19	Nov. 16	Nov. 28	Oct. 30	Nov. 3	Nov. 9	Nov. 15
Pittsburg, Pa	Nov. 6	Nov. 10	Oct. 20	Oct. 7	Oct. 30	Oct. 22	Oct. 25	Oct. 29
Lower Lakes.								
Buffalo, N. Y	Oct. 1	Oct. 29	Sept. 16	Oct. 6	Oct. 30	Aug. 28	Oct. 5	Oct. 29
Oswego, N. Y	Oct. 17	Nov. 11	Oct. 3	Oct. 7	Nov. 3	Nov. 14	Nov. 4	Oct. 15
Rochester, N. Y	Oct. 17	Oct. 29	Oct. 3	Oct. 7	Nov. 1	Oct. 22	Oct. 5	Oct. 15
Erie, Pa	Nov. 6	Oct. 21	Oct. 3	Nov. 5	Oct. 30	Nov. 14	Nov. 4	Oct. 28
Cleveland, Ohio	Nov. 6	Oct. 21	Nov. 16	Nov. 15	Oct. 30	Oct. 27	Oct. 5	Oct. 29
Toledo, Ohio	Nov. 6	Oct. 21	Oct. 20	Nov. 28	Nov. 2	Nov. 14	Nov. 4	Oct. 28
Detroit, Mich	Nov. 9	Oct. 21	Oct. 19	Nov. 15	Oct. 28	Oct. 7	Nov. 4	Oct. 28
Upper Lakes.								
Alpena, Mich	Oct. 1	Oct. 11	Oct. 2	Oct. 6	Oct. 26	Oct. 22	Oct. 25	Oct. 14
Escanaba, Mich	Sept. 30	Oct. 21	*c*	*c*	*c*	*c*	*c*	*c*
Grand Haven, Mich	Nov. 7	Oct. 21	Nov. 15	Nov. 5	Oct. 29	Nov. 1	Nov. 4	Oct. 28
Marquette, Mich	Sept. 30	Oct. 11	Oct. 2	Sept. 26	Sept. 13	Oct. 19	Oct. 23	Sept. 25
Port Huron, Mich	Nov. 6	Oct. 14	Oct. 3	Oct. 6	Oct. 28	Nov. 14	Oct. 5	Oct. 28
Chicago, Ill	Nov. 17	Oct. 21	Oct. 18	Oct. 30	Nov. 1	Nov. 14	Nov. 7	Nov. 15
Milwaukee, Wis	Nov. 6	Oct. 21	Nov. 10	Oct. 6	Oct. 29	Nov. 8	Oct. 26	Nov. 12
Duluth, Minn	Sept. 30	Oct. 20	Oct. 19	Sept. 26	Oct. 28	Oct. 31	Oct. 31	Oct. 24
Upper Mississippi Valley.								
St. Paul, Minn	Nov. 16	Oct. 22	Oct. 19	Sept. 26	Oct. 29	Nov. 8	Nov. 1	Nov. 2
La Crosse, Wis	Nov. 16	Oct. 22	Oct. 19	Sept. 26	Nov. 3	Nov. 3	Nov. 7	Oct. 28
Davenport, Iowa	Nov. 17	Nov. 19	Oct. 21	Nov. 26	Dec. 2	Nov. 8	Nov. 7	Nov. 12
Des Moines, Iowa	Nov. 16	Nov. 19	Oct. 21	Nov. 12	Nov. 8	Nov. 8	Nov. 7	Nov. 11

Dates of first snowfall—Continued.

Station.	1886-'87.	1887-'88.	1888-'89.	1889-'90.	1890-'91.	1891-'92.	1892-'93.	1893-'94.
Up. Miss. Val.—Cont'd.								
Dubuque, Iowa	Nov. 16	Oct. 22	Nov. 10	Nov. 14	Nov. 3	Nov. 8	Oct. 26	Nov. 12
Keokuk, Iowa	Nov. 17	Oct. 29	Oct. 21	Nov. 18	Dec. 3	Oct. 6	Nov. 7	Nov. 21
Cairo, Ill	Nov. 6	Oct. 27	Dec. 12	Nov. 17	Dec. 8	Nov. 20	Nov. 9	Dec. 3
Springfield, Ill	Nov. 17	Nov. 19	Nov. 16	Nov. 17	Dec. 3	Nov. 3	Nov. 17	Nov. 21
St. Louis, Mo	Nov. 5	Nov. 27	Nov. 16	Nov. 17	Dec. 4	Nov. 8	Nov. 8	Nov. 17
Missouri Valley.								
Leavenworth, Kans	Nov. 17	Nov. 23	Nov. 9	Oct. 27	Dec. 24	Nov. 20	Nov. 17	*c*
Omaha, Nebr	Nov. 16	Oct. 23	Oct. 21	Nov. 1	Dec. 2	Dec. 3	Nov. 7	Oct. 28
Valentine, Nebr	Nov. 15	Oct. 22	*d*	Oct. 31	Nov. 7	Oct. 5	Oct. 31	Nov. 11
Huron, S. Dak	Nov. 15	Oct. 23	Oct. 15	Nov. 2	Nov. 6	Nov. 2	Nov. 6	Oct. 23
Yankton, S. Dak	Nov. 17	Oct. 23	Nov. 8	Nov. 3	Nov. 8	Nov. 8	Nov. 2	Oct. 28
Extreme Northwest.								
Moorhead, Minn	Nov. 22	Oct. 20	Oct. 21	Oct. 21	Sept. 12	Oct. 30	Nov. 6	Sept. 24
St. Vincent, Minn	Sept. 29	Oct. 10	Oct. 16	Sept. 12	Sept. 12	Oct. 14	Nov. 6	Sept. 24
Bismarck, N. Dak	Sept. 18	Oct. 20	Oct. 18	Oct. 20	Oct. 10	Oct. 5	Oct. 17	Nov. 1
Fort Buford, N. Dak	Nov. 4	Oct. 7	Oct. 16	Nov. 12	Nov. 30	Oct. 1	Oct. 17	Oct. 1
Northern Slope.								
Assiniboine, Mont	Oct. 14	Oct. 7	Oct. 18	Sept. 7	Sept. 11	Sept. 30	Oct. 16	Sept. 20
Ft. Custer, Mont	Sept. 16	Oct. 7	Oct. 26	Nov. 4	Sept. 11	*c*	*c*	*c*
Helena, Mont	Sept. 4	Oct. 6	Oct. 16	Oct. 30	Sept. 5	Sept. 30	Oct. 15	Sept. 17
Deadwood, S. Dak	Oct. 24	Oct. 7	*c*	*c*	*c*	*c*	*c*	*c*
Rapid City, S. Dak	.....	.....	Oct. 25	Oct. 31	Nov. 5	Oct. 4	Nov. 6	Oct. 1
Cheyenne, Wyo	Sept. 16	Sept. 12	Oct. 6	Sept. 14	Oct. 4	Sept. 24	Oct. 11	Oct. 1
North Platte, Nebr	Nov. 5	Oct. 24	Nov. 15	Oct. 3	Nov. 7	Nov. 8	Nov. 1	Nov. 10
Middle Slope.								
Denver, Colo	Nov. 1	Oct. 8	Oct. 25	Oct. 29	Oct. 4	Oct. 2	Oct. 12	Oct. 1
Dodge City, Kans	Nov. 11	Nov. 23	Oct. 21	Oct. 31	Nov. 17	Nov. 14	Oct. 23	Nov. 11
Ft. Elliott, Tex	Nov. 16	Nov. 23	Dec. 28	Nov. 5	*c*	*c*	*c*	*c*
Southern Slope.								
Ft. Sill, Okla	Feb. 5	Dec. 15	Jan. 17	*c*	Dec. 7	*c*	*c*	*c*
Abilene, Tex	Jan. 8	Nov. 27	Jan. 26	Nov. 12	Jan. 10	Dec. 9	Nov. 14	Jan. 10
Ft. Stanton, N. Mex	Nov. 17	Dec. 3	Oct. 22	Nov. 4	Nov. 14	Nov. 8	Oct. 12	*c*
Southern Plateau.								
El Paso, Tex	*c*	Dec. 14	Jan. 23	Nov. 5	Jan. 9	Dec. 22	Dec. 15	Feb. 11
Santa Fe, N. Mex	Nov. 16	Nov. 26	Oct. 21	Sept. 24	Nov. 8	Nov. 8	Oct. 12	Nov. 10
Ft. Grant, N. Mex	Nov. 21	Dec. 22	Jan. 14	Nov. 4	Dec. 6	Dec. 20	*c*	*c*
Prescott, Ariz	Oct. 21	Nov. 24	Dec. 25	Nov. 3	*c*	*c*	*c*	*c*
Yuma, Ariz	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*
Middle Plateau.								
Winnemucca, Nev	Oct. 10	Nov. 24	Nov. 4	Dec. 7	Oct. 10	Sept. 30	Oct. 15	Nov. 22
Salt Lake City, Utah	Oct. 19	Nov. 17	Nov. 1	Nov. 13	Oct. 11	Oct. 1	Oct. 11	Nov. 1
Montrose, Colo	Nov. 2	Nov. 25	Nov. 1	Oct. 29	Oct. 3	Dec. 2	Oct. 11	Sept. 30
Northern Plateau.								
Spokane, Wash	Nov. 19	Oct. 25	Oct. 27	Nov. 22	Oct. 8	Nov. 14	Nov. 7	Oct. 22
Pacific Coast Region.								
Ft. Canby, Wash	Feb. 1	Jan. 12	Feb. 14	Jan. 1	Feb. 11	Dec. 30	Nov. 29	Oct. 31
Olympia, Wash	Dec. 26	Jan. 3	Jan. 16	Dec. 20	Feb. 9	Nov. 14	Nov. 26	Nov. 23
Portland, Oreg	Nov. 22	Nov. 24	Jan. 20	Dec. 21	Feb. 9	Dec. 3	Dec. 19	Nov. 2
Roseburg, Oreg	Nov. 21	Nov. 24	Jan. 17	Nov. 22	Feb. 17	Dec. 23	Dec. 22	Jan. 4
Walla Walla, Wash	Nov. 8	Nov. 24	Dec. 23	Nov. 23	Jan. 8	Nov. 8	Nov. 26	Nov. 23
Red Bluff, Cal	*c*	Jan. 1	*c*	Jan. 4	*c*	Dec. 26	*c*	Jan. 20
Sacramento, Cal	*c*	Jan. 4	*c*	*c*	*c*	*c*	*c*	*c*
San Francisco, Cal	Feb. 4	Jan. 5	*c*	*c*	*c*	*c*	*c*	Mar. 2
Keeler, Cal	Feb. 15	Dec. 30	Jan. 14	*c*	Feb. 22	Dec. 4	Dec. 5	Nov. 17
Los Angeles, Cal	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*
San Diego, Cal	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*

a Snow every month. *c* Station closed. *d* No reliable record. *e* No snow fell.

CLOUD PHENOMENA ATTENDING HAILSTORMS.

The following is quoted from a lecture by Prof. Frank W. Very, of the Observatory at Allegheny, Pa., in hope that numerous voluntary observers throughout the United States will add to our knowledge of the special features that develop in their respective localities, owing to topographic and atmospheric peculiarities:

In ordinary summer showers the storm is first seen as a mass of rounded cumulus clouds above a low base of strato-nimbus of greater breadth than the cumuli. The ascensive power is here insufficient to reach the level of cirrus. If any thin, white veils are seen to issue from the summit of the cloud-dome, they rapidly melt away.

The appearance is different in a really great thunder and hail storm. Through rifts in the approaching clouds on such occasions I have seen the sun surrounded by triple coronæ of great brilliancy, indicating rapid condensation in a rarefied atmosphere. Rarely the highest member of the combination is a veil of cirro-stratus giving halos. Commonly the upper veil is too thick to admit the passage of the sun's rays, and I well remember the first great hailstorm I ever witnessed as a huge mass of structureless, blue-green, inky darkness, reaching nearly to the zenith, partly hidden at its base by thin gray cumulo-stratus, blown by a south wind toward the thunder cloud which hung in the north, muttering and threatening for hours before it reached us.

* * * * * * * *

A series of advancing and overhanging veils of alto-stratus cloud may conceal the central dome of intense vertical circulation and greatest cloudy condensation. Below, at a height of only a few thousand feet, is an advancing edge of squall-cloud, like a great black billow, the ragged margin of the upturning layer of surface air at the level where condensation begins.

If the air is nearly saturated, the thin edge of the wedge of cold air, blowing out from under the cloud and lifting the hot air from the surface, may

reach the observer at almost precisely the moment that this squall-cloud passes overhead, for under these circumstances the upward motion has hardly begun before the upper layers of moist air are supersaturated.

We must avoid the conclusion that the advancing edge of the squall-cloud indicates a wind of the same velocity, moving in a like direction. In all probability it denotes rather the progress of a condition of hygrometric change.

While the cloud as a whole is advancing its component parts may often be seen to move backwards.

Behind the advancing edge of the squall-cloud comes a churning mass of conflicting cold, gray clouds, and then the descending sheets of rain or hail, and the loudest thunder, with lightning striking the earth.

The lower surface of cloud, on the rear side of the storm, is a uniformly ascending stratus or cumulo-stratus sheet, sometimes flecked with scattered particles of fracto-cumuli, or "scud," at a low level, produced by evaporation of the fallen water from a soil still warm, with almost immediate condensation of the vapor.

The level of the cloud increases in the rear, because the descending air has been depleted of its moisture in the region of heavy precipitation and is too dry to permit cloud at a low level, while the dryness progressively increases behind, as masses of air which have been thrown up to greater heights begin to descend.

LUMPS OF ICE AS HAILSTONES.

From Mr. S. M. Blandford, temporarily in charge of the Weather Bureau office in Portland, Oreg., there was received too late for the June REVIEW a report of the tornado that occurred June 3, 1894, passing northeastward through the counties of Harney, Grant, and Union, in eastern Oregon. He states that the most novel feature was the hail. One correspondent states that the formation was more in the nature of sheets of ice than simple hailstones. The sheets of ice averaged 3 to 4 inches square and from three-fourths of an inch to 1½ inches in thickness. They had a smooth surface and in falling gave the impression of a vast field or sheet of ice suspended in the atmosphere and suddenly broken into fragments about the size of the palm of the hand. During the progress of the tornado at Long Creek a piano was taken up and carried about a hundred yards.

OBSERVATIONS AT HONOLULU, HAWAIIAN ISLANDS.

As the weather on the Pacific coast depends so largely upon the conditions of the atmosphere to the westward, it is considered important to publish in full and as soon as practicable the data furnished by observers in Alaska, the Hawaiian Islands, and adjacent regions.

Meteorological observations at Honolulu, Republic of Hawaii, July, 1894, by Curtis J. Lyons, Meteorologist to the Government Survey.

Date.	Barometer at sea level. 9 a. m.	3 p. m.	9 p. m.	Temperature. 6 a. m.	2 p. m.	9 p. m.	Minimum.	Maximum.	Humidity. Relative. 9 a.m.	9 p.m.	Absolute.	Wind. Direction.	Force.	Cirrus cloud moving from—	Rain to 6 a. m.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	°	%	%					*Ins.*
1..	30.14	30.11	30.15	71	77	74	70	80	67	74	6.6	ne.	4	.....	0.01
2..	30.17	30.14	30.20	73	79	75	71	82	63	71	6.7	ne.	5	.....	0.06
3..	30.21	30.16	30.22	74	80	74	72	82	58	70	6.2	ne.	5	.....	0.01
4..	30.20	30.15	30.19	72	79	71	71	81	67	77	6.2	ne.	5	.....	0.04
5..	30.16	30.10	30.14	72	76	71	71	79	73	76	6.7	ne.	5	.....	0.16
6..	30.15	30.10	30.15	72	79	74	70	81	69	67	6.1	ne.	5	s., w.	0.07
7..	30.14	30.06	30.15	73	80	74	72	82	67	77	6.7	ne.	5	.....	0.00
8..	30.15	30.09	30.14	73	80	74	72	83	63	74	6.8	ne.	5	n. 80 w.	0.04
9..	30.15	29.97	30.13	73	80	75	72	81	74	67	6.7	ne.	5	n. 85 w.	0.10
10..	30.13	30.06	30.13	73	81	74	73	83	63	72	6.3	nne.	4	.....	0.03
11..	30.12	30.06	30.13	70	81	75	67	83	71	72	7.0	s., nne.	3	s. 40 w.	0.00
12..	30.16	30.09	30.17	75	81	76	74	84	59	66	6.4	nne.	3	.....	0.00
13..	30.17	30.09	30.16	75	82	74	74	84	59	70	6.3	ene., nne	3	.....	0.00
14..	30.12	29.96	30.10	70	76	74	69	81	62	66	6.2	ene., nne	3	.....	0.00
15..	30.07	30.01	30.08	73	80	74	72	82	56	70	6.3	ne.	3	.....	0.02
16..	30.08	30.03	30.07	72	80	74	70	82	65	70	6.3	nne.	4	.....	0.05
17..	30.10	30.06	30.12	72	82	74	70	84	63	74	6.7	ne.	4	.....	0.05
18..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
19..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
20..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
21..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
22..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
23..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
24..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
25..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
26..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
27..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
28..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
29..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
30..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
31..	.....	.....	.....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
Mean.	.....	.....	.....	....	....	....	....	....							
	.....			....											

The barometer is corrected for temperature and reduced to sea level, but the gravity correction, —0.06, is still to be applied.

The absolute humidity is expressed in grains of water, per cubic foot, and is the average of four observations daily.

The rain is measured at 6 a. m., daily.

The extremes of the force of the wind are given when it has varied more than usual. 8th, lava rose in crater of Kilauea and overflowed. 11th, slight earthquake disturbance. Breakdown in floor of crater, fall of 270 feet in twelve hours.

METEOROLOGICAL TABLES.

[*Prepared by the Division of Records and Meteorological Data.*]

The following pages present in tabular form the climatological data for the current month, on which the text of the preceding part of this REVIEW has, to a large extent, been based.

For a detailed description of the methods of observation, compilation, and computation relating to these tables, the reader is referred to page 129 of the MONTHLY WEATHER REVIEW for March, 1894. The general contents of the tables are as follows:

Table I gives for 140 Weather Bureau stations, making two observations daily, and for 10 others making only one observation, the ordinary climatological data.

Table II gives for about 2,200 stations, occupied by voluntary observers, the mean and extreme temperatures and the total precipitation.

Table III gives climatological data for about 30 Canadian stations.

Table IV *a* gives for 38 Weather Bureau stations the percentages of sunshine for each hour of local mean time.

Table IV *b* gives for 43 Weather Bureau stations the total hourly rainfall for each hour of seventy-fifth meridian time.

Table V gives for 81 stations the mean temperatures for each hour of seventy-fifth meridian time.

Table VI gives for 66 stations the mean pressures for each hour of seventy-fifth meridian time.

Table VII gives for 138 stations the mean hourly movement of the wind.

Table VIII gives for 68 stations the resultant movements and directions of the wind from continuous registrations.

Table IX gives for 140 stations the component and resultant directions based on simultaneous observations at 8 a. m. and 8 p. m., seventy-fifth meridian time.

TABLE I.—*Climatological data for Weather Bureau Stations, July, 1894.*

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Humidity and precipitation.					Wind.					Cloudiness, tenths.			Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. ÷ 2.	Mean reduced.	Departure from normal.	Mean max. and min. ÷ 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.	Clear days.	Partly cloudy days.	Cloudy days.	Highest for month.	Year.	Lowest for month.	Year.
New England.						69.9	+ 1.4										1.37	− 2.4												
Eastport	76	22	29.86	29.95	+ .03	60.6	+ 0.2	91	29	70	46	11	51	29	55	85	1.21	− 3.1	11	4,845	sw.	23	se.	24	10	19	2	4.8	62.2	1892	57.8	1891
Portland	103	23	29.84	29.94	+ .02	69.8	+ 1.8	97	28	79	53	11	61	33	60	76	2.96	− 0.8	11	4,370	s.	22	e.	24	8	12	11	5.9	72.3	1876	65.0	1891
Northfield	872	8	29.06	29.98	+ .04	67.2	+ 2.0	93	*	79	42	10	55	41	59	77	1.64	− 1.8	13	5,218	s.	28	s.	29	13	14	4	4.3	70.4	1887	62.6	1890
Boston	125	24	29.85	29.98	+ .04	73.7	+ 1.9	97	28	82	56	9	65	27	61	70	3.09	− 0.5	11	6,974	sw.	33	w.	13	11	12	8	5.1	74.7	1872	68.0	1884
Nantucket	14	8	30.00	30.01	.00	68.7	+ 0.9	85	31	75	58	18	63	19	64	87	0.29	− 2.7	3	7,026	w.	26	se.	24	14	12	5	4.6	70.2	1887	64.6	1891
Woods Holl	.....	17	.....	.....	.....	69.6	+ 1.4	83	26	74	57	23	65	16	.....	.....	0.68	− 2.7	3	9,995	sw.	44	sw.	12	12	14	5	4.5	71.9	1876	65.4	*
Vineyard Haven	.....	8	.....	.....	.....	73.6	+ 3.0	91	29	81	58	10	66	23	.....	.....	1.47	− 1.4	5	.....	sw.	.....	.....	.....	17	6	8	.....	73.6	1894	68.1	*
Block Island	27	14	29.98	30.01	+ .04	69.6	+ 0.8	84	26	75	57	9	64	17	64	85	0.22	− 3.0	4	11,343	sw.	37	sw.	12	11	17	3	4.7	71.4	1887	65.0	1891
Narragansett Pier	.....	13	.....	.....	.....	71.2	+ 1.0	87	29	79	52	*	63	24	.....	.....	0.71	− 3.1	5	.....	sw.	.....	.....	.....	19	1	11	.....	73.5	1887	66.8	1888
New Haven	107	22	29.87	29.98	+ .01	73.1	+ 1.8	94	13	83	50	10	63	25	66	81	2.40	− 3.0	11	5,116	sw.	26	sw.	13	17	11	3	3.8	77.2	1876	67.6	1891
New London	45	24	29.97	30.02	+ .05	71.9	+ 1.1	90	29	80	53	8	64	21	65	82	0.44	− 3.9	5	4,570	sw.	23	n.	23	13	16	2	4.4	74.6	1876	66.6	1891
Mid. Atlantic States.						76.3	+ 0.4										3.26	− 1.3												
Albany	85	21	29.90	29.99	+ .06	74.6	+ 1.6	97	*	85	54	8	64	30	63	72	2.96	− 1.0	14	4,250	s.	27	se.	6	12	12	7	4.6	76.6	1887	69.1	1891
New York, N. Y	185	24	29.81	30.00	+ .02	76.1	+ 2.3	96	28	85	58	8	67	25	63	69	2.89	− 1.7	10	6,345	sw.	31	nw.	29	7	21	3	5.2	76.7	1887	70.1	1884
Harrisburg	377	7	29.62	30.02	.....	76.0	+ 3.1	96	20	86	52	10	66	28	62	67	1.89	− 2.4	6	4,417	w.	33	w.	13	17	9	5	4.1	76.0	1894	69.6	1891
Philadelphia	117	24	29.90	30.02	+ .03	77.8	+ 1.7	97	28	87	58	8	69	24	64	69	0.75	− 3.8	7	6,889	sw.	36	nw.	21	12	12	7	4.6	79.7	1887	71.8	1884
Atlantic City	53	21	29.98	30.03	+ .05	70.3	− 1.9	87	14	76	56	10	65	23	65	86	0.15	− 3.3	6	7,682	sw.	32	ne.	22	9	17	5	5.0	75.3	1887	68.8	1891
New Brunswick	.....	.....	.....	.....	.....	76.8	.....	100	28	89	56	10	65	32	.....	.....	2.43	.....	8	.....	sw.	.....	.....	.....	4	14	13	.....	.....	.....	.....	.....
Baltimore	179	24	29.83	30.02	+ .04	77.6	− 1.0	97	*	87	56	10	68	28	64	66	1.73	− 3.2	9	4,960	sw.	26	w.	29	19	9	3	3.1	81.5	1872	71.6	1891
Washington, D. C	112	24	29.92	30.03	+ .04	77.9	+ 0.3	97	13	88	54	10	68	29	64	68	2.14	− 2.5	9	4,604	s.	26	nw.	29	15	12	4	3.5	81.4	1876	72.0	1891
Cape Henry	.....	21	.....	.....	.....	77.5	− 0.1	97	*	86	59	11	69	27	.....	.....	7.18	+ 1.4	13	.....	sw.	.....	.....	.....	16	11	4	.....	81.1	1887	75.0	1891
Lynchburg	685	24	29.34	30.06	+ .06	77.2	− 1.3	95	13	88	55	9	66	35	64	69	4.87	+ 1.2	14	2,621	sw.	35	nw.	15	7	19	5	5.3	82.6	1877	73.2	1891
Norfolk	57	24	29.99	30.05	+ .04	78.4	− 0.7	94	27	87	62	9	70	26	69	81	8.01	+ 2.4	12	6,106	sw.	30	sw.	23	12	7	4	4.9	82.2	1878	75.0	1891
S. Atlantic States.						78.0	− 2.6										8.41	+ 2.1												
Charlotte	773	16	29.26	30.01	+ .03	76.8	− 3.1	93	14	86	59	11	68	28	65	75	4.99	− 1.0	12	3,684	sw.	27	sw.	6	16	10	5	4.2	82.6	1881	74.7	1891
Hatteras	11	14	30.08	30.09	+ .06	77.6	− 0.3	86	30	82	68	12	73	12	72	82	9.65	+ 3.5	12	8,305	sw.	41	nw.	15	8	14	9	5.3	79.6	1883	75.0	1888
Kittyhawk	9	20	30.03	30.04	+ .03	76.9	− 1.7	90	14	83	62	11	71	21	70	81	8.59	+ 3.0	12	8,599	sw.	36	sw.	15	14	9	8	4.3	81.6	1887	75.1	1891
Raleigh	388	8	29.66	30.07	+ .03	77.4	− 0.9	93	*	87	58	11	68	29	67	78	6.33	− 1.5	13	3,153	sw.	29	nw.	15	8	9	14	6.0	79.8	*	74.0	1891
Southport	34	19	30.05	30.08	+ .05	76.8	− 3.0	85	28	82	61	12	72	19	72	83	7.33	+ 0.6	16	8,238	sw.	32	sw.	3	8	17	6	5.5	82.3	1880	76.8	1894
Wilmington	78	24	30.01	30.09	+ .06	77.6	− 2.5	91	7	84	62	11	71	20	74	91	9.08	+ 1.8	15	5,428	sw.	32	sw.	4	10	9	12	5.5	84.5	1872	76.6	1891
Charleston	52	24	30.04	30.09	+ .05	78.8	− 3.5	91	*	85	64	10	73	20	72	82	11.28	+ 3.9	18	5,849	sw.	27	ne.	10	3	23	5	5.8	84.9	1872	78.8	1894
Columbia	.....	8	.....	.....	.....	78.8	− 2.5	97	14	88	59	11	70	26	.....	.....	5.01	− 0.4	18	.....	se.	.....	.....	.....	10	10	11	.....	83.4	1893	77.2	1891
Augusta	209	23	29.88	30.10	+ .06	77.8	− 4.4	92	5	86	60	10	70	23	70	81	9.99	+ 4.8	20	3,040	s.	36	nw.	5	8	12	11	6.0	84.8	1878	77.8	1894
Savannah	98	24	29.99	30.09	+ .04	79.2	− 3.6	94	5	87	66	11	71	21	72	85	13.18	+ 8.1	23	5,325	sw.	28	ne.	10	1	25	5	6.2	84.7	*	79.1	1874
Jacksonville	43	23	30.04	30.09	+ .04	80.5	− 2.1	93	21	89	68	30	72	22	72	80	7.10	+ 0.5	21	5,813	sw.	42	sw.	2	0	14	17	7.5	84.7	1875	80.0	1874
Florida Peninsula.						80.9	− 1.8										5.91	− 1.0												
Jupiter	28	7	30.07	30.10	.....	79.8	− 2.5	90	21	86	70	28	74	16	74	84	3.60	− 2.5	14	5,422	sw.	25	s.	1	17	9	5	4.5	81.4	*	79.8	1894
Key West	22	24	30.09	30.11	+ .05	82.4	− 2.0	90	8	88	72	1	77	16	72	70	2.30	− 2.1	11	4,926	se.	30	s.	1	14	13	4	4.5	86.0	1881	82.0	1892
Tampa	36	15	30.06	30.10	.....	81.2	− 0.9	93	6	89	70	*	74	21	73	83	11.56	+ 1.2	22	4,054	ne.	31	se.	13	3	25	3	5.2	83.8	1883	80.2	1890
Titusville	44	8	30.07	30.11	.....	80.1	− 2.0	93	6	88	69	1	73	23	73	82	6.18	− 0.7	21	7,345	sw.	38	w.	7	2	29	0	5.0	81.2	1891	79.4	1889
Eastern Gulf States.						78.7	− 2.7										6.92	+ 1.6												
Atlanta	1,131	16	28.92	30.09	+ .02	76.2	− 2.2	93	4	85	58	11	67	24	66	77	5.55	+ 1.1	14	5,660	e.	34	ne.	3	5	13	13	6.4	80.9	1881	75.4	1891
Pensacola	56	15	29.98	30.04	+ .01	79.0	− 2.7	93	2	86	66	2	72	27	72	80	6.17	− 0.6	18	6,193	ne.	38	ne.	2	6	12	13	6.2	82.9	1881	78.5	1882
Mobile	57	24	30.00	30.06	+ .02	79.5	− 2.2	95	2	87	68	3	72	22	71	83	5.91	− 0.5	17	4,477	n.	28	ne.	6	1	29	1	5.6	85.0	1877	78.6	*
Montgomery	257	22	29.79	30.06	+ .02	79.8	− 2.4	98	4	89	64	10	70	27	68	76	4.38	+ 0.1	17	3,852	sw.	32	nw.	6	2	17	12	6.6	85.3	1875	78.1	1882
Meridian	358	4	29.68	30.05	.....	76.9	.....	98	3	87	60	24	66	30	68	78	6.90	.....	16	3,160	sw.	27	s.	31	4	12	15	6.8	.....	.....	.....	.....
Vicksburg	254	23	29.77	30.03	− .02	78.6	− 3.3	100	1	88	62	10	70	26	69	78	7.99	+ 3.9	14	3,887	se.	36	nw.	20	20	9	2	3.0	83.8	1881	78.1	1882
New Orleans	54	24	30.00	30.06	+ .03	79.2	− 3.4	99	1	86	67	11	72	23	70	77	11.51	+ 5.1	21	4,230	s.	42	e.	2	14	11	6	4.3	85.4	1884	79.2	1894
Port Eads	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70	28	75	.....	.....	.....	9.72	.....	18	.....	s.	.....	.....	.....	0	13	16	.....	.....	.....	.....	.....
Western Gulf States.						80.3	− 2.5										4.20	+ 1.1												
Shreveport	249	23	29.77	30.03	+ .01	79.9	− 3.8	101	1	90	63	10	70	27	68	72	3.09	− 0.6	6	3,766	s.	42	n.	16	16	7	8	4.4	86.2	1884	79.7	1882
Fort Smith	492	13	29.52	30.02	+ .04	80.1	− 1.4	105	2	93	58	23	67	37	64	61	1.59	− 2.2	6	4,074	e.	24	e.	17	14	11	6	3.8	82.6	1890	76.2	1891
Little Rock	302	16	29.72	30.04	+ .03	78.6	− 2.8	103	1	89	60	9	68	29	66	72	6.59	+ 3.2	11	3,935	e.	51	ne.	1	16	9	6	4.1	83.3	1879	76.6	1891
Corpus Christi	20	8	30.00	30.02	.00	81.0	− 1.8	98	2	87	70	14	75	24	74	81	4.87	+ 2.8	9	8,131	se.	34	se.	14	6	14	11	5.5	82.2	*	81.0	1894
Galveston	42	24	30.02	30.03	+ .03	81.3	− 3.3	97	2	86	69	10	77	17	72	77	6.32	+ 3.3	12	7,222	s.	35	nw.	9	19	10	2	2.9	86.2	1871	81.3	1894
Palestine	511	12	29.52	30.05	+ .02	80.8	− 1.8	103	2	92	63	10	70	29	70	75	2.70	− 0.0	7	3,675	se.	25	ne.	21	11	17	3	4.5	83.5	1893	79.6	1882
San Antonio	679	16	29.34	30.04	+ .04	84.0	+ 0.5	100	2	95	67	10	73	29	63	54	0.60	− 2.2	3	4,302	se.	28	se.	14	10	10	2	3.2	87.3	1879	79.4	1885
Ohio Val. & Tenn.						76.5	− 0.8										2.13	− 2.0												
Chattanooga	762	16	29.29	30.08	+ .04	76.6	− 2.1	94	2	86	59	8	67	28	64	70	3.66	− 0.1	18	3,723	sw.	36	nw.	2	6	16	9	5.7	81.3	1879	74.5	1886
Knoxville	980	24	29.05	30.02	+ .01	75.7	− 0.9	92	*	86	56	8	66	30	63	71	2.24	− 2.1	6	2,823	ne.	25	ne.	30	13	7	11	5.3	80.1	1878	72.3	1882
Memphis	330	24	29.72	30.06	+ .04	78.4	− 2.8	99	1	88	62	9	69	27	68	74	3.27	+ 0.1	8	3,655	nw.	30	nw.	1	17	9	5	3.3	83.6	1878	77.0	1891
Nashville	553	24	29.48	30.05	+ .05	76.6	− 2.9	96	2	86	59	11	67	29	63	69	5.45	+ 1.1	15	2,999	se.	36	ne.	2	11	13	7	5.1	83.4	1874	75.0	1891
Lexington	989	10	29.01	30.03	.....	75.6	− 0.1	93	2	86	55	8	65	26	60	62	0.87	− 4.3	8	6,170	sw.	34	sw.	20	9	14	8	5.5	78.6	1893	72.8	1891
Louisville	525	23	29.49	30.04	+ .04	78.1	− 0.7	96	26	89	57	8	67	30	60	59	2.41	− 1.4	7	4,537	s.	23	sw.	29	13	9	9	5.2	82.3	1887	74.0	1891
Indianapolis	766	24	29.24	30.03	+ .02	76.4	+ 0.1	97	31	88	54	7	65	31	58	56	1.35	− 3.5	5	3,714	sw.	22	nw.	28	14	12	5	4.5	80.6	1887	72.4	1891
Cincinnati	628	24	29.38	30.03	+ .03	77.3	− 0.2	95	18	87	55	8	67	29	59	55	0.13	− 3.0	6	4,729	nw.	25	nw.	6	16	12	3	4.0	81.6	*	71.4	1891
Columbus	868	17	29.14	30.04	+ .04	75.6	− 0.4	97	18	87	55	8	64	31	58	56	1.74	− 1.8	6	5,817	sw.	38	nw.	13	13	14	4	4.2	79.8	1887	70.0	1891
Pittsburg	820	24	29.17	30.02	+ .03	76.2	+ 1.1	97	19	87	49	9	66	28	58	58	1.16	− 3.7	12	4,093	nw.	30	nw.	2	10	18	3	4.7	80.6	1887	70.0	1891
Parkersburg	638	7	29.38	30.04	.....	75.5	+ 0.2	96	19	88	48	8	64	38	61	62	1.18	− 3.2	14	3,248	se.	26	sw.	29	12	13	6	4.4	76.1	1893	70.0	1891
Lower Lake Region.						72.8	+ 1.0										2.04	− 1.3												
Buffalo	690	24	29.27	29.99	+ .04	70.7	+ 1.4	89	17	78	53	9	64	24	62	74	1.81	− 1.6	9	7,023	w.	48	w.	6	11	17	3	4.7	74.9	1887	64.9	1884
Oswego	335	24	29.61	29.97	+ .01	69.9	+ 0.6	94	20	78	53	6	62	28	60	71	1.86	− 1.4	9	5,896	w.	30	nw.	6	14	13	4	3.8	74.5	1878	64.5	1884
Rochester	523	23	29.46	30.01	+ .06	72.0	+ 0.5	99	20	82	49	9	62	32	59	67	2.92	− 0.1	12	5,398	sw.	28	sw.	12	14	13	4	4.1	74.2	1887	65.1	1884
Erie	714	22	29.20	29.99	+ .02	72.7	+ 0.9	91	20	81	50	9	65	23	58	61	2.26	− 0.6	7	6,539	sw.	30	nw.	7	12	13	6	4.5	75.8	1887	66.2	1891
Cleveland	740	24	29.24	30.01	+ .02	73.2	+ 1.7	92	27	82	48	9	64	27	57	58	2.19	− 1.7	8	7,570	se.	40	w.	20	15	12	4	4.2	76.3	1887	68.0	1891
Sandusky	629	16	29.36	30.01	+ .02	75.2	+ 0.7	94	17	84	55	9	67	27	59	60	2.84	− 0.4	6	5,492	sw.	28	n.	6	11	17	3	4.3	77.6	1887	69.2	1891
Toledo	674	24	29.31	30.00	+ .02	74.8	+ 0.1	96	19	85	50	7	64	26	57	57	0.42	− 2.8	5	6,730	w.	30	sw.	12	15	14	2	3.8	77.2	1887	68.0	1891
Detroit	724	24	29.24	29.99	+ .01	73.0	+ 1.9	96	19	84	48	7	64	29	56	57	2.06	− 1.5	4	6,877	sw.	37	sw.	24	19	12	0	3.2	75.9	1887	67.2	1891
Upper Lake Region.						69.6	+ 1.7										1.12	− 2.1												
Alpena	609	22	29.32	29.97	+ .02	67.2	+ 1.9	98	27	77	45	7	57	31	56	68	0.91	− 2.3	8	5,594	se.	27	w.	28	15	11	5	4.3	69.0	1878	61.3	1884
Grand Haven	628	24	29.33	29.99	+ .02	69.6	− 0.1	92	19	79	52	21	60	31	56	63	0.57	− 2.4	3	6,322	sw.	27	sw.	12	18	12	1	2.9	73.0	1878	64.1	1891
Marquette	734	24	29.18	29.95	.00	66.6	+ 0.6	100	27	75	45	31	58	28	54	64	1.57	− 1.6	10	6,899	nw.	38	e.	26	14	10	7	4.7	70.8	1878	59.7	1891
Port Huron	639	20	29.32	29.99	+ .03	71.1	+ 1.3	96	19	81	47	5	61	30	58	66	0.65	− 1.9	6	6,832	ne.	36	sw.	12	17	10	4	3.4	73.4	1887	64.6	1891
Sault Ste. Marie	642	7	29.27	29.95	.....	64.5	+ 2.4	94	19	76	41	5	53	34	56	77	1.95	− 1.0	12	4,803	nw.	28	nw.	4	8	12	11	5.7	64.5	1894	58.0	1891
Chicago	824	24	29.16	30.01	+ .03	73.4	+ 1.1	96	24	81	54	7	66	31	55	56	0.60	− 3.2	2	11,020	ne.	50	sw.	12	25	4	2	1.9	76.0	1887	67.0	1891
Milwaukee	673	24	29.30	30.00	+ .02	72.5	+ 3.1	96	12	82	50	7	63	30	61	69	1.08	− 2.2	4	6,369	se.	35	w.	12	12	17	2	4.0	72.7	1878	65.5	*
Green Bay	617	8	29.34	29.99	+ .01	72.9	+ 3.2	97	*	85	48	7	61	33	56	57	1.86	− 1.4	7	5,515	sw.	32	sw.	14	6	22	3	5.9	74.1	1887	65.5	1891
Duluth	656	24	29.24	29.94	+ .02	68.6	+ 1.9	94	27	79	51	15	58	35	54	65	0.92	− 3.0	8	4,866	nw.	25	ne.	30	13	15	3	3.7	71.0	1878	61.3	1891
North Dakota.						71.3	+ 2.7										0.46	− 2.4												
Moorhead	935	14	28.95	29.93	+ .02	70.8	+ 3.0	102	11	85	46	6	56	44	57	64	1.03	− 3.3	4	6,367	s.	36	nw.	27	18	10	3	3.7	71.2	1881	63.4	1891
Saint Vincent	804	14	29.07	29.91	.00	68.6	+ 2.8	100	16	84	40	6	53	45	59	75	0.49	− 2.2	5	5,419	s.	34	w.	1	17	10	4	3.3	69.3	1886	60.8	1884
Bismarck	1,681	20	28.23	29.95	+ .05	74.2	+ 3.8	101	25	90	47	4	59	44	51	48	0.30	− 2.1	3	6,346	nw.	36	s.	25	24	5	2	2.5	75.2	1886	64.3	1884
Williston	1,874	16	27.98	29.88	.00	71.5	+ 1.3	100	30	86	46	29	57	46	45	40	0.02	− 2.0	1	5,789	se.	30	w.	11	15	8	8	4.2	75.6	1886	64.0	1884
Upper Miss. Valley.						77.1	+ 1.2										0.77	− 3.0												
Minneapolis	.....	.....	.....	.....	.....	76.9	.....	100	26	89	54	5	65	30	.....	.....	0.20	.....	5	.....	s.	.....	.....	.....	13	13	5	.....	.....	.....	.....	.....
Saint Paul	850	24	29.09	29.97	+ .02	75.8	+ 3.8	100	11	88	53	7	63	33	52	48	0.13	− 3.2	4	5,438	se.	27	w.	2	18	9	4	3.4	75.8	1891	65.7	1891
La Crosse	720	22	29.25	30.00	+ .05	75.6	+ 2.3	100	26	89	49	7	62	36	55	55	0.35	− 4.2	5	4,816	s.	28	nw.	5	25	6	0	2.1	76.6	1874	66.8	1891
Davenport	613	23	29.37	30.00	+ .01	76.9	+ 1.7	100	26	89	54	22	64	35	55	51	0.44	− 3.4	1	4,858	sw.	25	sw.	12	16	10	5	4.1	78.0	*	69.2	1891
Des Moines	869	16	29.11	30.01	+ .04	77.7	+ 2.7	104	26	91	52	7	65	39	52	46	0.29	− 3.2	4	5,160	sw.	34	sw.	26	23	7	1	2.8	78.4	1886	68.4	1882

TABLE I.—*Climatological data for Weather Bureau Stations, July, 1894*—Continued.

Districts and stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.									Humidity and precipitation.					Wind.				Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Mean temperature data since opening of station.			
			Mean pressure, 8 a. m. and 8 p. m. + 2.	Mean reduced.	Departure from normal.	Mean max. and min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					Highest for month.	Year.	Lowest for month.	Year.
Up. Miss. Val.—Con.																															
Dubuque	.....	22	.....	.....	.....	77.0	+ 2.7	102	26	91	50	7	63	36	.....	.....	0.02	— 4.9	1	.....	n.	....	.....	...	28	1	2	....	78.3	1874	68.8	1891
Keokuk	613	23	29.38	30.01	+ .04	78.0	+ 0.8	102	26	90	56	22	66	36	59	55	0.37	— 3.9	2	4,562	sw.	48	w.	28	21	9	1	2.5	81.5	1878	70.6	1891
Cairo	359	24	29.66	30.04	+ .05	77.0	— 2.0	95	1	86	62	24	68	26	63	67	1.92	— 1.7	8	4,528	s.	36	nw.	1	13	16	2	3.6	82.5	*	74.8	1891
Springfield, Ill	644	16	29.38	30.04	+ .04	76.5	— 0.7	98	26	88	54	22	65	33	56	53	2.06	— 0.2	3	4,758	sw.	30	nw.	20	10	12	9	4.9	81.0	1871	71.0	1891
Hannibal	534	....	29.47	30.02	.....	77.0	.....	100	26	90	51	22	64	39	58	55	1.07	.....	4	5,536	sw.	29	s.	27	14	14	3	4.3	....	....	.....	....
Saint Louis	571	24	29.44	30.03	+ .04	79.2	— 0.3	98	26	89	61	22	69	29	59	56	1.35	— 2.1	8	6,609	s.	40	nw.	28	17	8	6	3.8	83.7	1887	73.8	1882
Missouri Valley.						76.1	+ 0.2										1.96	— 2.3													
Columbia	.....	...	.....	.....	.....	77.2	.....	105	25	92	50	23	62	44	.....	.....	1.20	.....	5	3,469	s.	21	sw.	19	14	11	6	4.4	....	....	.....	....
Kansas City	963	7	29.05	30.04	+ .07	76.8	— 1.7	99	24	87	61	22	67	31	60	60	4.35	+ 0.5	5	5,197	se.	35	nw.	4	16	11	4	3.3	80.5	1890	72.4	1891
Springfield, Mo	1,336	8	28.67	30.05	+ .06	75.0	— 3.0	97	1	85	56	9	65	28	60	65	2.91	— 1.6	9	5,724	se.	42	sw.	19	12	15	4	3.9	79.0	1888	72.2	1891
Topeka	.....	8	.....	.....	.....	76.9	— 0.1	101	24	88	58	22	65	37	.....	.....	2.68	— 2.2	5	.....	s.	.....	.....	...	19	9	3	....	80.9	1890	72.0	1891
Omaha	1,123	24	28.87	30.01	+ .04	77.4	+ 0.3	106	26	88	59	15	66	29	55	50	0.61	— 4.7	5	5,393	se.	28	s.	26	19	9	3	3.1	79.6	1874	71.2	1891
Valentine	2,613	9	27.32	29.94	+ .02	75.1	+ 2.0	103	26	89	50	20	62	42	51	50	0.97	— 2.1	8	7,105	s.	48	s.	29	9	21	1	4.5	75.7	1886	67.8	1891
Sioux City	1,165	....	28.79	29.97	.....	76.0	.....	107	26	89	48	7	63	37	54	51	1.81	.....	5	7,252	s.	38	ne.	31	16	13	2	3.3	....	....	.....	....
Pierre	1,470	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79.2	1874	69.3	1884
Huron	1,310	14	28.59	29.94	.00	75.6	+ 3.2	108	11	93	47	13	58	47	51	47	0.23	— 3.7	6	8,797	se.	60	sw.	11	14	16	1	3.8	75.6	1894	66.0	1882
Northern Slope.						70.7	+ 0.7										1.29	— 0.5													
Havre	2,477	14	27.38	29.89	+ .01	69.6	+ 1.7	97	22	87	42	2	52	48	42	41	0.38	— 1.8	5	5,152	nw.	44	nw.	25	21	10	0	2.9	74.1	1886	63.9	1884
Miles City	2,374	17	27.50	29.88	.....	74.7	+ 1.0	103	24	89	48	1	60	44	44	40	0.27	— 1.1	6	3,528	nw.	30	w.	25	19	10	2	2.4	82.4	1886	67.2	1883
Helena	4,108	15	25.94	30.00	+ .09	69.0	+ 2.5	94	23	82	46	1	56	35	39	40	0.32	— 0.6	6	5,498	sw.	36	w.	25	22	4	5	3.1	70.6	1890	62.5	1884
Rapid City	3,280	9	26.69	29.93	+ .02	73.4	+ 2.7	100	10	86	52	1	61	40	48	45	1.31	— 0.8	9	6,155	w.	36	s.	25	13	13	5	4.5	74.5	1890	68.4	1891
Cheyenne	6,105	24	24.17	29.94	+ .05	67.7	— 0.7	94	11	81	46	28	54	36	49	58	3.25	+ 1.4	9	6,290	nw.	38	sw.	22	7	22	2	4.8	70.5	1876	62.9	1875
Lander ‡	5,377	9	24.77	29.98	.....	66.8	— 2.6	94	10	84	42	28	50	46	43	48	1.09	+ 0.1	9	3,169	sw.	36	sw.	26	9	22	0	4.4	73.7	1886	64.9	1882
North Platte	2,841	20	27.15	29.99	+ .05	74.0	0.0	103	26	88	51	20	61	42	57	60	2.39	— 0.4	10	6,427	se.	44	nw.	23	9	20	2	4.5	77.4	1890	69.7	1891
Middle Slope.						74.3	— 1.1										1.84	— 0.7													
Colorado Springs	6,098	12	24.19	30.04	.....	66.8	— 3.1	88	26	78	48	21	55	33	46	54	2.95	+ 0.2	12	5,782	n.	40	nw.	29	8	18	5	5.3	73.2	1874	64.6	1875
Denver	5,287	23	24.91	30.00	+ .13	71.6	— 1.2	96	10	85	53	7	58	36	46	47	2.11	+ 0.4	11	4,802	s.	36	sw.	26	9	19	3	4.5	75.3	1881	67.8	1875
Pikes Peak	.....	18	18.11	.....	.....	37.3	.....	49	26	42	26	32	14	27	27	71	3.81	.....	18	10,454	ne.	72	w.	27	3	12	16	6.5	43.6	1888	35.1	1875
Pueblo	4,734	7	25.39	29.99	.....	73.6	— 0.9	97	27	87	54	7	60	40	47	48	1.70	— 0.3	9	5,314	nw.	38	n.	12	7	20	4	5.1	77.2	1888	72.4	1891
Concordia	1,410	10	28.58	30.01	+ .06	77.1	0.0	104	26	90	55	*	64	44	58	58	1.14	— 2.2	6	4,836	s.	24	s.	25	20	9	2	2.5	82.3	1890	72.8	1891
Dodge City	2,523	20	27.44	29.97	+ .04	78.5	0.0	106	25	92	53	21	65	40	53	51	2.05	— 1.0	6	8,192	se.	47	sw.	29	18	10	3	3.4	82.4	1890	73.8	1891
Wichita	1,366	7	28.60	29.99	.....	78.2	— 1.3	104	24	91	56	9	66	39	59	58	1.72	— 1.3	5	4,949	se.	25	s.	28	18	7	6	3.4	82.4	1890	74.6	1891
Oklahoma City	1,239	....	28.75	30.02	.....	79.4	.....	104	3	92	58	10	67	37	62	60	1.66	.....	4	5,113	se.	24	n.	20	26	4	1	1.8	....	....	.....	....
Southern Slope.						.....	.....										.....	.....													
Abilene	1,749	9	28.24	30.00	+ .04	82.0	— 1.4	104	3	94	62	11	71	33	57	49	0.79	— 0.8	4	5,491	se.	30	nw.	6	17	9	5	3.3	86.3	1893	80.2	1889
Amarillo	3,691	....	26.35	29.98	.....	75.8	.....	98	3	87	60	11	67	30	47	43	1.82	.....	6	10,855	s.	54	n.	30	14	13	4	4.0	....	....	.....	....
Southern Plateau.						81.6	— 1.4										1.38	— 0.8													
El Paso	3,796	17	26.24	29.95	+ .04	81.0	— 2.7	102	4	94	62	14	68	36	42	33	1.40	— 0.9	3	4,834	se.	40	ne.	7	16	14	1	3.2	85.5	1884	79.0	1880
Santa Fe	7,051	21	23.44	30.00	+ .06	68.8	— 0.4	84	24	80	49	*	57	27	36	38	2.17	— 0.7	12	5,017	se.	42	sw.	28	11	19	1	4.5	70.6	1886	64.0	1875
Tucson	2,390	10	27.48	29.86	.....	85.2	— 2.0	106	5	99	66	10	72	35	55	44	1.60	— 1.7	12	3,635	nw.	36	se.	27	12	18	1	4.5	87.6	1892	77.4	1878
Yuma	141	19	29.68	29.82	+ .02	91.2	— 0.3	113	25	105	72	2	78	34	63	45	0.36	+ 0.2	1	5,295	sw.	30	se.	14	23	7	1	2.5	94.0	1877	89.1	1885
Middle Plateau.						71.6	+ 0.2										0.48	+ 0.3													
Carson City	4,720	7	25.36	29.96	.....	68.6	+ 0.9	90	31	84	46	27	54	38	37	35	0.21	+ 0.2	5	.....	.....	....	.....	...	28	1	2	1.2	69.3	1889	65.5	1892
Winnemucca	4,340	16	25.71	29.94	+ .09	71.5	+ 0.6	94	9	87	49	*	56	42	32	32	0.39	+ 0.3	6	6,750	sw.	56	s.	10	18	9	4	3.2	73.1	1882	69.4	1881
Salt Lake City	4,345	21	25.72	29.96	+ .09	74.6	— 0.9	96	10	88	53	28	62	34	44	38	0.82	+ 0.3	4	4,167	se.	38	w.	3	15	14	2	3.7	78.4	1889	73.3	1891
Northern Plateau.						72.8	+ 0.6										0.16	— 0.4													
Baker City	3,430	6	26.51	29.95	.....	67.1	.....	92	23	82	38	27	52	38	44	49	1.28	.....	4	3,678	nw.	21	sw.	14	20	6	5	2.6	71.5	1889	64.0	1892
Idaho Falls	4,742	5	25.32	29.95	.....	68.2	.....	96	10	86	38	28	51	45	40	45	0.07	.....	3	5,121	nw.	36	sw.	7	11	16	4	4.7	68.2	1894	67.0	1892
Spokane	1,930	14	28.02	29.99	+ .07	70.0	+ 1.0	95	23	85	45	1	55	40	40	41	0.29	— 0.4	3	4,231	sw.	24	nw.	16	15	10	6	4.2	72.5	1886	65.6	1881
Walla Walla	1,018	9	28.95	29.99	+ .05	75.5	+ 0.3	99	23	90	51	*	61	39	46	38	0.03	— 0.4	1	4,059	s.	34	w.	15	24	7	0	2.7	78.0	1889	71.8	1892
N. Pac. Coast Region.						60.7	— 0.4										0.61	— 0.5													
East Clallam	.....	...	.....	.....	.....	55.6	.....	91	13	65	42	9	46	46	.....	.....	0.58	.....	2	.....	w.	.....	.....	...	22	2	7	.....	.....	.....	.....	.....
Fort Canby	179	11	29.91	30.11	+ .05	57.2	— 1.4	73	18	62	49	3	53	23	52	85	0.43	— 0.9	4	7,514	nw.	43	e.	24	12	7	12	5.6	60.4	1885	55.0	1887
Neah Bay	.....	9	.....	.....	.....	58.0	— 1.3	75	14	68	41	*	48	28	.....	.....	1.70	— 0.3	6	.....	w.	....	.....	...	16	7	8	....	60.5	1886	56.2	1888
Olympia	.....	18	.....	.....	.....	63.7	+ 1.2	96	13	79	40	11	48	48	.....	.....	0.37	— 0.4	3	.....	nw.	.....	.....	...	21	5	5	....	64.9	*	59.5	1881
Port Angeles	29	10	30.07	30.10	+ .07	56.6	0.0	86	13	64	43	11	50	32	49	77	0.21	— 0.3	4	4,939	w.	24	w.	9	25	2	4	2.5	58.1	1885	54.3	1887
Port Crescent	.....	.....	.....	.....	.....	57.5	.....	85	12	69	39	7	46	36	.....	.....	0.37	.....	5	.....	w.	....	.....	...	24	5	2	.....	.....	.....	.....	.....
Pysht	.....	.....	.....	.....	.....	57.2	.....	82	13	70	31	7	45	45	.....	.....	0.26	.....	5	.....	w.	....	.....	...	25	1	5	.....	.....	.....	.....	.....
Seattle	119	....	29.94	30.07	.....	64.3	.....	88	13	74	50	*	54	32	52	70	0.14	.....	3	3,373	nw.	18	s.	7	17	14	0	3.4	....	....	.....	....
Tatoosh Island	86	10	30.03	30.13	+ .06	54.7	— 1.5	75	13	59	45	11	50	27	51	89	1.60	— 0.7	10	6,742	sw.	46	e.	12	11	6	14	5.9	57.6	1886	49.8	1890
Astoria	.....	10	.....	.....	.....	60.9	— 0.6	77	1	68	48	9	54	25	.....	.....	0.69	— 0.5	5	.....	nw.	....	.....	...	17	9	5	....	63.1	1885	58.5	1887
Portland	157	23	29.90	30.07	+ .04	67.2	— 0.6	94	12	79	49	27	55	36	51	63	0.10	— 0.6	4	6,278	nw.	35	sw.	13	21	8	2	2.3	71.2	1875	63.5	1884
Roseburg	523	18	29.46	30.01	— .03	67.3	+ 0.8	93	18	82	46	11	53	42	50	62	T.	— 0.5	0	2,714	nw.	20	nw.	17	20	8	3	2.8	70.4	1889	62.7	1881
Mid. Pac. Coast Reg.						67.0	— 0.4										0.01	0.0													
Eureka	64	8	30.02	30.08	+ .02	54.4	— 1.4	64	23	59	46	18	50	17	51	90	0.02	— 0.2	1	4,094	nw.	23	nw.	7	3	18	10	6.3	58.0	1888	52.5	1887
Red Bluff	342	18	29.57	29.92	+ .05	83.0	+ 2.5	106	31	99	61	15	68	38	48	34	0.02	0.0	1	3,781	nw.	24	n.	16	28	3	0	11.0	85.4	1880	78.4	1884
Sacramento	71	18	29.84	29.91	+ .02	74.0	+ 0.8	104	17	90	51	15	57	41	54	55	T.	0.0	0	6,475	sw.	22	sw.	9	28	2	1	0.8	76.4	1891	70.2	1887
San Francisco	153	24	29.84	30.00	+ .04	56.4	— 3.6	76	31	62	48	*	50	26	51	88	T.	0.0	0	11,211	sw.	40	sw.	17	18	11	2	3.5	61.4	1888	55.2	1887
Point Reyes Light	.....	.....	.....	.....	.....	53.2	.....	68	31	59	44	*	47	20	.....	.....	0.00	.....	0	.....	nw.	.....	.....	...	8	1	22	.....	.....	.....	.....	.....
S. Pac. Coast Region.						71.6	— 2.0										T.	0.0													
Fresno †	338	7	29.53	29.88	+ .03	82.7	+ 0.5	106	18	100	56	15	65	41	47	34	T.	0.0	0	5,347	nw.	22	nw.	18	28	3	0	1.4	83.6	1891	79.4	1892
Los Angeles	330	18	29.62	29.96	+ .02	67.4	— 3.4	88	25	80	51	8	54	35	55	76	T.	0.0	0	2,633	w.	15	w.	14	13	16	2	3.4	73.7	1891	64.2	1880
San Diego	93	23	29.87	29.97	+ .02	64.8	— 3.2	77	25	70	57	*	59	18	58	82	0.00	0.0	0	3,889	w.	17	w.	19	24	4	3	2.7	69.0	1891	63.4	1880

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record. * Two or more directions, dates, or years. † Received too late to be considered in departures, etc. ‡ Normals of temperature and precipitation and extremes of temperature combined with Fort Washakie records. ‖ All temperature and precipitation normals and extremes of temperature are obtained from Fort Buford records. § All data, except precipitation, for 29 days only.

TABLE II.—*Meteorological record of voluntary and other co-operating observers, July, 1894.*

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Alabama.	°	°	°	*Ins.*
Alco	96	66	79.3	.....
Bermuda *† [5]	95	66	78.2	2.74
Birmingham †	95[e]	70[e]	82.4[e]	4.20
Carrollton *† [1]	94	64	77.5	3.98
Citronelle †	97	68	78.8	8.68
Clanton †	97	59	79.4	1.89
Collirene *[1]	95	65	80.7	3.05
Cordova †	.....	.....	.....	3.56
Daphne †	99	65	80.2	6.37
Decatur *b †	97	58	76.9	4.13
Demopolis †	.....	.....	.....	2.75
Elba †	86	69	76.5	3.73
Eufaula *a †	99	66	80.6	6.79
Eufaula *c †	.....	.....	.....	7.21
Evergreen †	96	65	80.2	1.59
Florence *a †	.....	.....	.....	2.88
Florence *b †	96	58	76.4	3.50
Fort Deposit †	98	64	79.0	2.97
Gadsden †	95	59	77.6	3.97
Greensboro †	97	63	78.6	2.90
Healing Springs *†	101	60	76.6	5.23
Highland Home †	94	66	78.2	6.19
Livingston †	102	61	80.1	4.10
Madison Station †	98	59	77.6	5.81
Maple Grove †	98	56	76.2	5.61
Marion †	98	62	80.2	3.56
Mount Willing †	98	59	79.5	4.43
Newbern †	96	67	79.4	4.04
Newburg †	102	56	76.3	4.35
Newton †	96[1]	62[1]	78.6[1]	7.22
Opelika †	96	60	79.5	2.34
Oxanna *† [1]	94	60	77.6	6.32
Pine Apple †	100	61	78.1	4.11
Pushmataha †	100	64	79.6	3.26
Rock Mills †	98	61	78.0	13.37
Scottsboro †	98	57	77.0	10.41
Selma †	.....	.....	.....	4.64
Starlington *† [1]	98	65	77.8	3.82
Sturdevant †	.....	.....	.....	4.11
Talladega *†	98	60	79.0	4.81
Tallassee Falls †	.....	.....	.....	3.07
Thomasville †	98	63	79.0	5.80
Tuscaloosa †	103	59	80.3	3.92
Tuscumbia †	98	60	78.6	3.63
Union †	.....	60[e]	.....	5.06
Union Springs *a †	102	62	80.6	3.91
Uniontown	99	65	79.4	7.44
Valley Head †	91	57	75.5	3.50
Wetumpka	.....	.....	.....	3.13
Wilsonville †	.....	.....	.....	5.13
Alaska.				
Killisnoo †	71	40	53.2	3.95
Metlakahtla †	78	40	57.3	7.97
Arizona.				
Antelope Valley †	.....	.....	.....	2.06
Benson *a [6]	107	65	84.1	1.65
Benson *b †	107	57	83.2	1.14
Bisbee *† [1]	96	62	75.7	1.63
Buckeye †	110	68	88.4	0.30
Calabasas †	102	60	79.0	2.23
Casa Grande *[5]	111	75	86.9	0.67
Dragoon †	.....	.....	.....	1.69
Dragoon Summit *[5]	100	65	82.3	6.40
Eagle Pass *[3]	.....	60	70.6	1.30
Farleys Camp [3]	.....	.....	85.8	0.90
Flagstaff †	98	47	68.0	0.94
Fort Apache	98	45	72.8	1.27
Fort Bowie †	98	61	78.3	1.07
Fort Grant	101	50	78.4	2.55
Fort Huachuca	98	57	76.5	1.85
Gila Bend *[5]	113	80	96.3	0.99
Globe †	106	62	85.7	1.03
Holbrook †	98	54	75.6	1.01
Keams Canyon †	94[e]	51[e]	72.2[e]	1.18
Lochiel †	.....	.....	.....	6.68
Maricopa *[5]	120	85	97.0	0.38
Mount Huachuca †	98	55	76.2	2.08
Natural Bridge †	.....	.....	.....	0.45
Navajo *[5]	.....	54	66.3	.....
Oracle †	100	63	81.3	2.81
Oro	.....	.....	.....	0.82
Palomas †	113	66	89.9	0.28
Pantano *[5]	103	75	84.0	8.42
Parker †	118	68	92.7	0.25
Peoria †	111	73	92.4	0.68
Phœnix *b †	109	71	90.2	0.97
Red Rock *† [5]	114	75	93.4	1.20
Reymert †	103	61	85.2	1.58
Rye †	111	57	85.2	0.97
St. Helena R'h †	98	62	80.8	3.14
San Carlos	110	61	87.0	0.81
San Simon *[5]	109	81	91.6	0.20
Show Low	.....	.....	.....	2.91
Signal †	111	69	90.7	0.18
Texas Hill *[5]	117	81	94.4	0.00
Tucson *b *[5]	106	84	93.5	1.37
Walnut Ranch *† [1]	93	60	74.9	2.97
Whipple Barracks	95	51	73.8	1.13
Wilgus †	.....	.....	.....	2.81
Willcox *[5]	105	45	79.7	0.00
Yuma *[5]	112	77	92.2	0.30
Arkansas.				
Arkadelphia †	.....	.....	.....	3.01
Arkansas—Cont'd.				
Arkansas City †	.....	.....	.....	4.10
Bee Branch †	105	55	77.3	3.70
Blanchard Springs †	102	58	78.1	5.50
Brinkley †	102	57	79.2	3.09
Camden *a †	.....	.....	.....	5.80
Camden *b †	103	58	79.2	6.26
Cassville †	97	57	75.9	2.55
Conway *[1]	100	62	76.6	3.85
Cornerstone *[1]	99[e]	66[e]	78.6[e]	3.03
Corning †	101	54	76.0	3.68
Dallas †	108	59	79.8	4.61
Dardanelle †	.....	.....	.....	3.08
Fayetteville †	101	52	77.4	1.45
Forrest †	101	58	78.6	2.62
Fulton †	.....	.....	.....	5.96
Gaines Landing †	.....	.....	.....	1.44
Hamburg	101	57	79.4	3.99
Helena *a †	.....	.....	.....	6.99
Helena *b †	105	60	80.6	6.11
Hot Springs *a	107	53	79.0	4.03
Huntsville †	.....	.....	.....	2.70
Keesees Ferry †	104	51	76.1	10.52
Kirby †	102	60	79.7	5.45
Lonoke *[1]	106	72	80.8	5.74
Luna Landing *[6]	98	64	79.3	6.80
Madding [3]	.....	.....	81.1	1.93
Malvern †	104	56	77.4	1.08
Mount Ida †	103	55	76.3	6.79
Mount Nebo †	95	52	74.1	1.28
Newport *a †	.....	.....	.....	5.76
Newport *b †	103	60	78.3	6.32
Newport *c †	100	58	75.8	6.19
Osceola †	96	61	77.3	3.78
Ozark †	107	60	82.4	2.38
Pine Bluff †	105	60	80.2	4.35
Pocahontas †	.....	52	.....	5.92
Prescott †	107	60	81.6	2.57
Rison †	102	60	78.9	3.49
Rogers †	99	54	75.0	1.93
Russellville †	104	58	79.9	2.92
Stuttgart †	103	59	77.8	5.25
Texarkana †	105	60	81.8	4.38
Washington †	100	63	79.2	4.81
Winslow †	91	61	75.8	3.41
California.				
Adin	92	44	69.8	1.31
Ager *	104	50	76.2	0.03
Agnew	93	46	64.9	0.00
Anaheim *[5]	89	56	67.8	T.
Anderson *[1]	100	64	77.3	0.18
Antioch *[5]	102	58	76.2	0.00
Aptos *[5]	85	50	63.9	0.00
Arlington Heights	102	49	74.8	T.
Athlone *[5]	115	65	83.0	0.00
Auburn *[5]	104	62	80.5	T.
Bakersfield *a *[5]	106	74	84.3	0.00
Ballast Point L. H.	.....	.....	.....	0.00
Barstow †	106	62	85.2	T.
Beaumont *[5]	105	64	81.5	0.00
Belmont *[5]	88	58	71.1	.....
Berendo *[5]	108	68	88.3	0.00
Berkeley	80	50	60.9	0.00
Bethany *[1]	100	55	77.7	T.
Bishop Creek *[5]	103	73	86.2	T.
Boca *[5]	90	35	55.4	0.00
Borden *[2]	108	63	87.4	0.00
Boulder Creek *[5]	96	50	67.7	0.00
Brentwood *[5]	100	59	73.6	0.00
Brighton *[5]	123	55	83.3	0.00
Byron *[5]	100	57	77.1	0.00
Caliente *[5]	106	70	86.2	0.00
Calistoga *[5]	102	50	75.6	0.00
C. Mendocino L. H.	.....	.....	.....	0.00
Capitola *[5]	86	50	63.9	.....
Castroville *[5]	76	54	62.4	0.00
Cedarville †	94	50	70.3	0.19
Centerville *[1]	99	53	67.0	T.
Chico *[5]	105	62	81.3	0.00
Chino *[6]	98	58	74.5	0.00
Cisco *[5]	80	46	64.3	0.00
Claremont *[8]	97	48	72.2	0.00
Cloverdale *[1]	106	52	75.8	0.00
Colfax *[5]	98	58	76.6	0.00
Colton *[5]	104	60	78.4	0.00
Colusa †	102	51	78.0	0.00
Corning *[5]	110	63	86.9	0.00
Crescent City	70	43	56.8	0.07
Crescent City L. H.	.....	.....	.....	0.00
Crofton *[5]	102	60	83.0	0.00
Davisville *a *[5]	100	68	79.4	0.00
Delano *[5]	105	70	86.8	0.00
Delta *[5]	105	60	84.2	0.00
Dinuba *[5]	106	75	88.1	0.00
Downey *[5]	92	58	69.7	0.02
Drytown	103	47	76.5	T.
Dunnigan *[5]	100	60	81.1	0.00
Dunsmuir *[5]	95	60	76.0	0.00
East Brother L. H.	.....	.....	.....	0.00
Edgwood *[5]	92	54	71.5	0.00
Edmanton *[1]	91	46	64.8	0.00
Eldorado *[5]	102	65	80.9	0.00
Elmira *[5]	108	51	79.9	0.00
El Verano *[5]	94	55	70.8	0.00

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Emigrant Gap *[5]	82	52	67.5	0.00
Escondido	101	51	72.2	0.00
Esparto *[5]	109	59	84.5	0.00
Evergreen	.....	.....	.....	0.00
Exeter *[5]	104	61	76.9	0.00
Fall Brook *[1]	97	52	68.2	0.04
Farmington *[5]	104	48	75.4	0.00
Felton *[5]	98	46	69.3	0.00
Fernando *[5]	100	50	72.3	0.00
Florence *[5]	85	56	68.4	0.00
Florin *[5]	102	54	77.8	0.00
Folsom City *a *[5]	110	68	89.5	0.00
Folsom City *b *[1]	106	65	80.4	0.01
Fremontville *[1]	90	53	65.7	0.12
Fresno *[5]	111	65	86.9	0.00
Fruto *[5]	105	70	80.5	0.00
Galt *[5]	106	65	80.4	0.00
Georgetown †	94	56	74.6	T.
Gilroy *[5]	100	55	68.0	0.00
Girard *[5]	94	65	73.6	0.00
Glen Ellen *[5]	103	53	69.1	0.00
Gormans Station	.....	.....	.....	0.00
Goshen *[5]	109	60	89.0	0.00
Grass Valley *a	.....	.....	.....	T.
Greenville *† [1]	98	45	67.8	0.00
Haywards *[5]	85	54	64.3	0.00
Healdsburg *[1]	94	46	66.1	0.00
Hollister *[5]	90	51	67.3	0.00
Hornbrook *[5]	99	62	76.5	0.00
Humboldt L. H.	.....	.....	.....	0.01
Huron *[5]	105	65	84.6	0.00
Hydesville †	74	45	58.2	0.00
Independence †	102	56	79.1	0.12
Indio *a [5]	117	80	95.8	T.
Ione *[5]	105	60	77.1	0.00
Iowa Hill *[1]	95	65	76.0	T.
Jackson	94	50	72.8	T.
Jolon	.....	.....	.....	0.05
Keeler *[5]	109	68	84.4	0.11
Keene *[5]	97	60	77.9	0.00
Kennedy Gold Mine	100	54	76.2	0.00
Kernville	.....	.....	.....	0.00
King City *[5]	100	50	69.9	0.00
Kingsburg *[5]	107	73	86.5	0.00
Knights Landing *[5]	108	64	86.3	0.00
Kono Tayee	96	57	76.4	0.00
Lagrange *[5]	112	57	84.2	T.
La Porte *† [1]	84	50	62.0	T.
Lathrop *[5]	103	64	79.2	0.00
Laurel *[5]	96	51	65.3	0.04
Lemoore *a *[5]	105	65	86.0	0.00
Lick Observatory †	86	56	71.3	0.02
Lime Point L. H.	.....	.....	.....	0.00
Livermore *[5]	97	52	69.5	0.00
Livingston *[5]	112	68	85.5	0.00
Lodi	100	50	74.2	T.
Long Beach *[5]	85	55	62.5	.....
Los Angeles *[5]	96	58	75.3	0.00
Los Banos *[5]	102	68	83.7	0.00
Los Gatos *a *[5]	102	55	72.6	0.00
Los Gatos *b	95	44	65.0	T.
Mammoth Tank *[5]	115	85	96.5	T.
Manzana *[1]	105	60	77.1	0.00
Mare Island L. H.	.....	.....	.....	0.00
Mariposa *[1]	98	66	78.8	0.00
Martinez *[5]	88	50	65.5	0.00
Marysville *a *[5]	110	52	78.4	0.00
Mendota *[5]	108	69	84.5	0.00
Menlo Park *[5]	90	52	67.8	0.00
Merced *[5]	107	62	83.0	0.00
Middletown *[1]	104	55	75.2	0.00
Mills College	.....	.....	.....	0.00
Milton *[5]	106	61	82.4	0.00
Milton (near) *[1]	102	60	76.9	T.
Modesto *[5]	104	68	82.4	0.00
Mohave *[5]	108	75	84.0	0.00
Mokelumne Hill *[5]	.....	60	78.0	0.00
Monson *[5]	104	75	86.9	0.00
Montague *[5]	92	68	81.0	0.00
Monterey *[5]	74	50	60.4	0.00
Monterey (Hotel del Monte) *[5]	76	50	63.9	.....
Mount Glenwood *[1]	104	60	78.0	0.00
Napa *a [5]	101	48	67.9	0.00
Napa *b	92	54	68.6	T.
National City †	90	51	67.9	0.00
Needles †	113	73	94.2	0.09
Neenach *[1]	104	65	81.2	0.00
Nevada City †	90	47	69.0	0.00
New Almaden *[5]	96	56	68.8	0.00
Newark *[5]	90	58	68.8	0.00
Newcastle *a †	101	50	78.1	0.00
Newcastle *b *[5]	98	64	81.9	0.00
Newhall *[5]	107	59	78.8	0.00
Newman *[5]	111	70	88.0	0.00
Niles *[5]	92	54	67.7	0.00
Norwalk *[6]	96	60	72.6	0.00
Oakdale *a [1]	105	58	79.6	0.00
Oakdale *b *[5]	108	62	80.2	0.00
Oakland *[5]	83	51	59.0	0.00
Ogilby *[5]	119	85	97.6	0.00
Oleta *[1]	95	56	71.7	T.
Ontario *a [5]	100	58	76.7	0.00
Ontario *b	102	52	75.2	0.00
Orangevale †	107	50	78.7	T.
Orland *[5]	113	70	88.3	0.00
Oroville *a *[5]	104	66	84.4	0.00
Oroville *b	102	60	72.2	0.00
Pajaro *[5]	94	41	63.3	0.00
Palermo †	109	58	81.7	T.
Palm Springs *[6]	118	90	104.9	0.00
Pasadena	96	45	70.9	0.05
Paso Robles *a *[5]	105	52	76.3	0.00
Paso Robles *b	102	44	70.9	0.00
Petaluma *[1]	98	56	66.4	0.00
Piedras Blancas L.H.	.....	.....	.....	0.15
Pigeon Point L. H.	.....	.....	.....	0.00
Placerville *a *[5]	100	53	74.5	T.
Pleasanton *a *[5]	104	57	70.8	T.
Pleasanton *b	99	44	68.8	0.00
Pt. Ano Nuevo L. H.	.....	.....	.....	0.00
Point Arena L. H.	.....	.....	.....	0.00
Point Bonita L. H.	.....	.....	.....	0.00
Pt. Conception L. H.	.....	.....	.....	0.00
Point Fermin L. H.	.....	.....	.....	0.00
Pt. Hueneme L. H.	.....	.....	.....	0.00
Point Loma L. H.	.....	.....	.....	0.00
Point Montara L. H.	.....	.....	.....	0.00
Point Pinos L. H.	.....	.....	.....	0.13
Point Reyes L. H.	.....	.....	.....	0.00
Point Sur L. H.	.....	.....	.....	0.00
Pomona *[5]	100	60	76.1	0.00
Portersville *[5]	108	74	88.9	0.00
Port Los Angeles *[5]	70	55	61.6	0.00
Puente *[5]	95	54	73.6	0.00
Ravenna *[5]	106	62	83.6	0.00
Red Bluff *[5]	106	71	88.4	0.00
Redding *a *[5]	107	58	81.4	0.00
Redding *b †	102	59	81.8	T.
Reedley (near) *[1]	104	78	88.3	T.
Redlands *b *[5]	104	66	80.1	0.00
Represa	98	52	76.4	0.00
Rio Vista	104	52	75.0	0.03
Riverside	105	46	75.2	0.00
Rocklin *[5]	104	65	83.2	0.00
Roe Island L. H.	.....	.....	.....	0.00
Rosewood *[1]	105	68	79.6	0.01
Sacramento *a	95	46	69.5	T.
Sacramento *b *[5]	96	58	71.1	0.00
Sacramento *c *[5]	98	62	78.2	0.00
Salinas *[5]	85	54	63.6	0.00
Salton *[5]	119	82	100.1	0.23
San Ardo *a *[5]	104	50	62.0	0.00
San Bernardino †	102	48	74.6	T.
San Gabriel *[5]	98	58	72.7	0.00
Sanger Junction *[5]	106	68	85.8	0.00
San Jacinto	105	48	77.0	0.13
San Jose *a *[5]	91	53	67.6	0.00
San Jose *b	92	41	64.4	T.
San Luis L. H.	.....	.....	.....	0.00
San Luis Obispo *b *[5]	85	41	64.9	0.00
San Mateo *[5]	89	56	67.4	0.00
San Miguel *[5]	102	55	77.3	0.00
San Miguel Island	74	47	58.4	T.
San Pedro *[5]	83	61	70.2	0.00
Santa Ana *[5]	93	60	74.5	0.00
Santa Barbara *a	78	52	62.8	0.12
Santa Barbara *b *[5]	81	53	62.0	0.15
Santa Barbara L. H.	.....	.....	.....	0.03
Santa Clara *a *[5]	88	49	63.8	T.
Santa Clara *b	99	41	67.0	0.00
Santa Cruz *a *[5]	81	52	62.9	0.00
Santa Cruz *b †	89	46	63.8	0.01
Santa Cruz L. H.	.....	.....	.....	0.01
Santa Margarita *[5]	100	51	67.8	0.00
Santa Maria	80	48	63.4	0.06
Santa Monica *[5]	74	58	66.2	0.00
Santa Paula *a *[5]	80	56	64.6	0.10
Santa Paula *b	86	44	62.2	0.12
Santa Rosa *[5]	95	52	68.3	0.00
Saticoy	.....	.....	.....	0.00
Selma *[5]	105	70	83.7	0.00
Shasta Springs	94	44	67.1	0.01
Shingle Springs *[5]	98	65	71.5	0.00
Sims *[5]	99	50	72.6	T.
Sisson *[5]	98	43	69.7	0.00
Soledad *[5]	90	50	65.1	0.00
Sonoma *[5]	94	47	61.4	0.00
S. E. Farrallon L. H.	.....	.....	.....	0.00
South Vallejo *[5]	89	53	63.5	0.00
Spadra *[5]	100	56	74.7	0.00
Stanford Univer'y.	93	47	65.5	T.
Stockton *a	99	51	73.0	0.00
Stockton *b *[5]	98	64	77.6	0.00
Suisun City *[5]	103	55	67.9	0.00
Summerdale	.....	.....	.....	T.
Summit *[5]	78	50	63.2	.....
Susanville *† [1]	95	59	72.2	0.00
Sutter Creek *[5]	98	46	72.4	0.00
Tehachapi *a *[5]	90	69	77.9	0.00
Tehama *[5]	106	65	89.0	0.00
Templeton *[5]	105	54	69.0	0.00
Towles *[5]	90	56	74.0	0.00
Tracy *[5]	98	60	72.5	0.00
Traver *[5]	107	76	93.1	0.00
Trinidad L. H.	.....	.....	.....	0.00
Tropico *[5]	90	54	66.5	0.00
Tulare *a [5]	107	63	85.2	0.00
Tulare *b	.....	.....	.....	0.00

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California—Cont'd.	°	°	°	*Ins.*
Tulare *c*	112	54	83.8	0.00
Turlock *a* *5	108	67	85.7	0.00
Turlock *b* †	109	48	77.6	T.
Ukiah †	99	48	71.2	T.
Upper Lake	101	53	75.0	0.00
Upper Mattole *1	95	50	68.0	0.00
Vacaville *a* *1	106	58	77.5	0.00
Vacaville *b* *5	110	60	76.3	0.00
Valley Springs *8	106	64	82.1	0.00
Ventura †	77	47	60.0	0.13
Vina *8	104	61	87.5	0.00
Volcano Springs *8	123	80	97.8	0.00
Walnut Creek	105	49	73.2	0.00
Wenrich Ranch				0.00
Westley *8	104	65	82.6	0.00
Wheatland	108	53	78.2	T.
Whittier *8	98	57	72.5	0.00
Williams *8	105	64	84.3	0.00
Willows *a* †	103	54	82.8	T.
Willows *b* *8	103	65	84.7	0.00
Wilmington *5	98	60	72.6	0.00
Winchester	112	44	77.6	0.06
Winters *8	106	67	84.3	0.00
Wire Bridge *5	100	61	79.6	0.00
Woodland *8	106	60	77.2	0.00
Yerba Buena L. H.				0.00
Yreka †	99	42	70.8	0.77
Yuba City *5	105	64	84.2	T.
Colorado.				
Abbott				1.75
Akron †	101	52	75.8	1.83
Alma †	75	30	50.6	3.09
Amherst †				1.15
Avoca				1.22
Boulder	89	48	69.0	3.08
Box Elder				2.90
Breckenridge †	82	30	50.9	3.22
Byers *1	95	46	69.8	
Canyon †	95	52	71.4	2.82
Castle Rock †	97	44	68.6	2.46
Cheyenne Wells *†	108	45	77.0	3.46
Climax *†	70	28	44.8	3.12
Colbran				1.81
Como (near) †	77	37	54.8	5.83
Cope †	105	47	75.1	0.76
Deer Trail *5	97	60	74.7	2.55
Delta †	100	46	75.8	0.58
Divide Ex. Station	86	43	63.1	2.82
Downing †	96	50	71.4	1.60
Dumont	93	42	63.4	2.99
East Dale				1.55
First View *8	100	56	75.6	1.45
Fleming				0.69
Garnett				1.22
Glen Eyrie †	85	48	65.2	3.25
Glenwood Sp'gs †	94	50	70.1	1.48
Gold Hill *5	88	48	64.4	2.10
Grand Junction †	100	58	79.2	0.57
Greeley				0.76
Gunnison † [d]	86	35	62.6	0.21
Holly †				2.94
Hugo *5	100	67	79.7	3.00
Hugo (near) †	93	41	66.1	1.45
Husted †	95	45	67.4	2.21
Julesburg	105	52	75.1	0.88
Kirk				0.90
Kit Carson				1.10
La Jara †	89	45	66.0	1.30
Lake Moraine	71	32	53.3	1.26
Lamar	105	53	78.1	3.65
La Porte				1.96
Las Animas †	101	48	74.8	0.10
Lavender †	95	41	69.8	1.55
Lay *†	100	52	69.6	0.90
Le Roy *†	102	55	75.5	1.16
Leslie				0.90
Loveland				1.18
Minneapolis †	104	49	77.2	0.89
Monte Vista	88	42	63.6	1.18
Moraine †	83	38	59.6	2.25
Pagoda (near) †	94	35	65.2	0.95
Paonia				1.55
Parachute †	96	50	74.0	0.91
Rangely	100	47	72.8	0.66
Red Cliff				3.23
Rico				2.07
River Bend *5	102	70	81.2	6.50
Rocky Ford †	100	51	75.0	1.40
Ruby †				2.79
Saguache †	88	40	64.3	1.13
San Juan †				1.72
San Luis †	91	38	64.1	1.06
Seibert †				1.17
Smoky Hill Mine †	86	42	62.2	3.46
Springfield †				2.33
Stamford *1	78	36	53.0	3.00
Steamboat Spr'gs †	94	29	64.4	0.70
Sunnyside	76	36	54.8	3.71
Thon †	100	47	70.6	3.10
T. S. Ranch †	92	50	72.0	1.20
Twin Lakes				5.32
Vernon	105	52	76.2	1.87
Vilas				2.32
Wallet †				1.10
Ward District				1.44
Colorado—Cont'd.				
Watkins *1	96	50	76.8	
Yuma				0.80
Connecticut.				
Bridgeport *1	93	59	73.3	0.69
Canton	97	45	72.6	1.92
Colchester	93	45	71.7	2.05
Falls Village				1.35
Greenfield Hill				0.70
Hartford *b*				1.44
Hartford *c*	95	52	74.0	
Lake Konomoc				0.93
Lebanon				1.35
Meriden	97	52	73.6	
Middletown	100	48	74.3	1.10
New Hartford *a* *†	92	49	69.5	3.71
N. Grosvenor Dale	99	46	73.4	1.51
Norwalk	96	46	72.6	0.83
Southington *1	96	50	73.1	2.00
South Manchester				1.70
Storrs	95	48	71.9	2.09
Thompson *1	93	50	70.2	
Voluntown †	94	45	72.4	1.83
Wallingford †				1.10
Waterbury	94	48	72.9	2.43
West Simsbury				1.95
Delaware.				
Dover	95	56	77.0	2.16
Kirkwood [2]			78.2	
Milford	95	54	77.4	2.85
Millsboro	96	57	77.0	4.07
Newark	96	50	76.0	2.44
Wilmington †	101	55	80.0	0.94
District of Columbia.				
Dist'ng Reserv'r *5	93	59	78.2	2.24
Rec'ing Reserv'r *8	94	61	78.2	2.28
West Washington	100	54	78.6	2.20
Florida.				
Amelia †	90	71	80.0	6.55
Archer †	95	68	80.3	12.21
Avon Park †	95	69	81.8	10.08
Brooksville †	90	70	79.0	11.68
Clermont †	94	71	81.7	7.68
Eustis †	95	69	82.0	5.46
Federal Point †	93	68	79.2	9.54
Fort Meade †	91	69	79.4	5.90
Gainesville †	95	70	81.3	10.70
Grasmere †	91	70	80.0	11.55
Green Cove Sp'gs †	91	69	79.0	11.46
Homeland †	92	68	79.6	5.46
Hypoluxo *†	89	74	81.1	5.34
Kissimmee †	95	70	82.6	5.15
Lake City †	91	72	79.5	9.43
Manatee †	92	66	78.8	9.54
Merritts Island †	92	72	81.5	3.87
Moseley Hall †	91	70	79.4	15.29
Mullet Key †	94	72	83.7	5.91
New Smyrna †	93	64	79.2	7.03
Oak Hill *1	92	75	82.6	
Ocala *†	91	72	79.3	8.41
Orange Park	92	69	80.4	8.77
Orlando †	95	71	82.0	7.02
Plant City †	95	69	80.7	6.55
St. Francis B'ks	90	68	78.4	10.45
Tallahassee †	91	69	77.8	12.60
Tarpon Springs †	89	71	79.8	7.43
Georgia.				
Adairsville †	97	67	77.4	3.18
Alapaha †	94	65	79.7	6.59
Albany †	97	66	81.0	7.82
Americus †	98	63	81.8	9.89
Athens *a*	91	50	76.6	4.74
Athens *b* †	96	55	78.2	3.82
Bainbridge *a* †	96	68	80.8	7.05
Bainbridge *b* †				7.09
Blakely *†	95	65	78.3	5.47
Brag †	97	62	79.1	10.40
Camak †	96	58	79.3	8.20
Camilla	93	68	78.8	5.50
Canton †				5.25
Clayton †	87	51	71.6	7.29
Columbus †	96	63	79.2	9.88
Cordele †	95[e]	64[e]	79.6[e]	10.54
Covington	98	58	78.2	9.58
Dahlonega †	90	55	73.0	7.89
Darien †	96	67	80.0	9.87
Diamond †				7.66
Dublin *a* †	96	62	79.6[e]	8.88
Dublin *b* †				10.13
Eastman †	94	62	80.0	10.75
Elberton †	97	59	78.0	6.33
Fleming †	100	60	81.4	11.96
Forsyth *1	95	65	79.2	5.91
Fort Gaines †	96	61	82.8	5.29
Gainesville †	93	54	76.6	4.81
Gillsville *†	94	62	75.4	4.42
Griffin †	92	56	74.9	12.23
Hawkinsville †	93	60	75.6	14.84
Hephzibah *†	88	62	75.3	12.10
Lafayette †	92	58	75.4	5.01
Lagrange †	97	59	76.2	4.87
Leverett	93	56	76.8	10.08
Louisville †	93	58	77.7	11.96
Lumpkin †	92	63	78.1	6.59
Macon *a* †	99[f]	61[f]	80.0[f]	4.79
Macon *b* †				5.77

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Georgia—Cont'd.	°	°	°	*Ins.*
Marietta †	93	56	75.0	5.73
Marshallville †	92	68	80.4	4.99
Millen †	97	60	79.6	12.92
Monticello *†	93	60	77.8	6.50
Morgan †	96	66	79.0	7.79
Newnan †	98	58	77.6	5.32
Point Peter *1	94	58	78.5	6.70
Poulan †	94	57	78.6	9.05
Quitman †	94	68[m]	78.6[m]	12.69
Ramsey †	94	52	76.5	4.50
Resaca †				4.40
Reynolds †				4.71
Rome †	94	58	77.4	4.42
Talbotton †	93	60	76.8	7.65
Thomasville †	94	68	79.4	12.43
Toccoa †	93	55	75.8	6.26
Union Point †	96	58	77.8	8.25
Washington †	93	59	78.1	4.10
Way Cross †	92	68	79.1	10.84
Waynesboro †	95	59	78.3	15.86
West Point †	97	61	79.4	5.87
Whitesburg †				8.18
Idaho.				
American Falls †	100	38	70.8	0.00
Atlanta †	87	35	64.0	0.28
Boise Barracks †	99	41	73.8	0.00
Fort Lemhi †	99	45	74.7	0.19
Fort Sherman †	93	38	68.8	T.
Fraser †	93[k]	41	67.8[k]	0.10
Garden Valley †	97	43	73.0	0.08
Grangeville	93	41	66.7	0.66
Hailey †	102	36	67.3	0.42
Idaho City †	101[e]	35[e]	68.8[e]	0.00
Kootenai †	90	42	66.8	0.10
Lake †	78	32	53.6	1.11
Lewiston †	105	44	74.2	0.03
Martin †	97	31	64.9	0.00
Moscow †	93	40	71.8	0.12
Murray †	93	37	64.4	0.27
Nampa	100	40	73.8	0.08
Oakley †	103	44	74.0	0.01
Paris †	93	36	65.6	1.54
Parker	91	38	66.0	0.36
Payette †	107	38	73.9	0.10
Salubria †	105	36	73.2	0.12
Illinois.				
Albion †	99	52	77.6	2.12
Atwood *8	104	50	71.8	1.94
Beardstown †				1.77
Bloomington †				1.34
Braidwood †	94	50	74.5	0.46
Bushnell †	103	49	77.7	0.66
Carlinville †	101	53	77.8	1.77
Carlyle				2.06
Chemung *†	97	44	73.2	0.76
Chester †				1.91
Clear Creek †	106	44	75.2	0.25
Decatur †	96	51	76.0	2.33
Dixon †	103	44	75.0	0.15
East Peoria †	99	48	74.3	2.53
Evanston *10	97	56	74.2	
Fort Sheridan †	95	49	72.4	T.
Galva †	100	46	74.8	0.99
Golconda †	97	60	78.4	1.69
Grafton †				1.35
Greenville †	103	54	79.1	2.69
Griggsville †	103	50	78.6	0.78
Halliday *3	97[e]	65[e]	75.4[e]	1.60
Havana †	99	55	77.0	1.04
Herrins Prairie *1	94	60	79.3	0.50
Jordans Grove †	97	55	76.1	3.15
Kankakee †				0.85
Louisville	96	56	76.6	2.96
Luella *1	104	60	77.7	0.98
Martinsville	97	51	75.0	3.44
Mascoutah *5	105	58	80.9	2.00
Mattoon *1	96	65	78.8	3.84
Monmouth †	105	43	75.8	1.02
Mount Carmel †				1.19
Mount Pulaski	100	52	76.6	3.27
Olney *a* *1	99	56	79.2	2.28
Olney *b* *1	107	60	77.7[e]	3.13
Oregon	106	42	77.2	0.85
Oswego *2	101	46	73.0	0.50
Ottawa †	103	47	75.8	0.80
Palestine	96	52	76.4	1.85
Paris †	98	49	75.8	1.74
Peoria *a* †				0.57
Peoria *b*	102	57	78.8	1.00
Philo †	101	47	73.8	2.53
Rantoul *†	100	56	77.2	0.41
Riley †	99	48	74.2	0.31
Rushville	102	53	78.2	0.67
St. John *3	98	67	77.8	1.37
South Chicago *10	93	52	74.6	
Sycamore *†	95	55	74.2	0.78
Tuscola *†	98	55	73.0	2.61
Walnut †	103	48	77.7	0.26
Warsaw †				0.38
Winnebago †	100	46	74.4	1.48
Zion †	100	52	75.4	0.33
Indiana.				
Angola *1	104	51	72.4	1.06
Bedford	96	55	76.3	1.00
Butlerville	99	45	74.5	1.42

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Indiana—Cont'd.	°	°	°	*Ins.*
Cambridge City †	94	46	73.3	0.48
Columbia City *1	96	44	73.4	1.66
Columbus	97	56	78.5	0.37
Connersville †	94	47	73.9	0.64
Crawfordsville	93	51	76.2	3.67
Degonia Springs *6	93	56	77.3	0.96
Delphi	99	51	75.9	1.75
Evansville †				1.80
Farmland † [e]	94	45	74.4	0.55
Hammond †	101	41	76.2	0.17
Hawpatch	98	47	71.8	2.30
Huntingburg *†	96	68	81.3	1.15
Huntington	96	50	75.4	0.39
Jeffersonville	94	54	76.8	2.95
Kokomo †	98	48	75.3	1.53
Laconia	96	53	77.3	0.85
Lafayette †	100	48	73.5	1.55
Logansport *b* †				2.97
Logansport *b* †	97	44	73.0	0.24
Madison †	95	52	76.2	2.14
Marengo *1	96	56	75.9	1.50
Marion †	100	46	74.3	1.07
Markle †	98	43	73.4	0.55
Mauzy	96	46	73.9	0.27
Mount Vernon *b* †	95	55	76.9	0.89
New Albany *†	91	60	77.4	2.31
Plymouth †	99	48	75.1	3.55
Princeton *†	98	56	76.9	0.95
Rockville †	97	48	73.5	1.40
Rushville †				0.21
Scottsburg [1]	94[e]	51	75.9	0.70
Seymour †	96	55	76.9	0.45
South Bend †	95	50	74.3	1.66
Terre Haute †	98	56	78.4	3.04
Valparaiso †	98	42	69.8	2.00
Veray	97	52	76.5	0.60
Vincennes †	100	53	78.3	1.31
Worthington †	93	52	74.0	3.08
Indian Territory.				
Eufaula †				3.30
Gwenndale †	107	51	79.6	1.84
Healdton †	110	53	81.0	2.60
Lehigh †	112	63	84.1	2.96
Purcell †	110	49	80.8	1.56
Tahlequah †	110	54	82.0	1.29
Tulsa †				2.65
Iowa.				
Afton	107	53	77.8	0.96
Albia	104	47	77.8	0.73
Algona *1	104	60	76.5	0.24
Alta †	106	50	76.7	0.39
Amana †	104	47	75.8	0.98
Ames *c*				0.04
Atlantic †	104	43	74.0	1.23
Audubon	104	45	75.8	0.86
Belle Plaine	106	46	76.2	0.08
Bonaparte †	107	46	78.2	0.19
Carroll †	108	42	75.2	1.73
Cedar Falls †	105[f]	47[e]	77.6[f]	
Cedar Rapids †	100	51	76.0	0.18
Centerville	107	50	82.7	3.50
Charles City	100	45	73.2	1.19
Clarinda †	100	56	76.3	0.39
Clinton	100	46	75.4	0.39
College Springs	104	54	76.9	0.44
Corning †	100	50	74.7	3.30
Cresco †	105	44	74.2	0.09
Decorah	104	44	73.9	0.43
Delaware *3	104	48	75.0	0.11
Elkader †	106	42	74.5	0.16
Emmetsburg	106	50	77.1	0.47
Fairfield	104	49	76.6	0.07
Forest City	105	49	74.3	0.50
Fort Madison *†	100	63	80.9	0.38
Galva †	106	39	74.0	1.12
Glenwood †	106	56	80.0	0.37
Grand Meadow *1	100	56	74.3	0.45
Greenfield †	103	49	77.5	0.57
Grundy Center	105	46	74.9	0.09
Hampton	104	47	75.7	0.70
Hopeville †	102	55	77.2	1.00
Hopkinton *5	100	52	75.0	0.05
Humboldt †				2.01
Independence †	105	47	74.6	T.
Indianola †	105	51	77.4	0.40
Iowa City †	100	48	73.6	0.90
Iowa Falls †	105[d]	47[1]	76.9[1]	0.09
Jefferson †	108	47	78.2	0.18
Keosauqua †	104	50	77.7	0.77
Knoxville	104	55	77.6	T.
Larrabee †	106	46	76.2	0.69
Le Claire †				0.43
Logan †	110	48	77.5	0.41
Mason City †	103[e]	48[e]	74.7[e]	0.24
Maxon *1	108	60	79.9	1.06
Mechanicsville	102	49	74.5	1.07
Monticello †	103	46	75.4	0.13
Mount Pleasant *1	96	55	75.1	0.26
Newton	106	51	78.1	T.
North McGregor †				0.07
Ogden	108	52	81.8	0.01
Osage *†	103	57	73.0	0.49
Osceola	102	57[e]	78.1[e]	0.65
Oskaloosa	103	48	75.0	0.05
Ottumwa	103	52	77.2	0.11

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Iowa—Cont'd.	°	°	°	*Ins.*
Ovid †	107	50	78.8	0.48
Panama †	105	48	76.4	1.31
Richland *[1]	105	64	77.6	1.78
Rock Rapids	106	42	77.2	1.88
Rockwell City	.....	.....	.....	0.11
Sac City †	106	58	77.0	2.76
Seymour †	103	53	78.4	0.45
Sibley	102	43	72.6	1.01
Spirit Lake †	109	43	78.5	0.07
Sutherland	106	45	74.9	0.29
Toledo *[1]	106	45	78.3	0.05
Vinton *[1]	104	53	76.3	0.30
Washington †	104	48	76.9	1.14
Webster City *[1]	108	51	77.7	T.
West Bend *† [1]	105	50	75.7	0.65
Williams *[1]	107	41	75.0	0.14
Wintersett †	105	51	78.2	0.50
Kansas.				
Abilene †	104	54	78.0	T.
Achilles *[2]	110	62	76.3	2.45
Allison *† [2]	106	56	77.8	0.91
Altoona *† [2]	100	65	77.2	1.09
Atchison †	102	56	76.6	2.90
Beloit †	107	53	78.6	0.82
Burlington †	103	53	76.8	0.15
Coffeyville *[2]	105	59	77.8	1.79
Colby †	107	45	76.6	1.76
Coldwater †	107	56	78.6	5.08
Columbus †	101	52	76.1	3.40
Coolidge †	108	49	77.4	2.14
Cunningham †	107	53	78.9	2.43
Downs	.....	.....	.....	1.02
Eldorado †	109[d]	.....	.....	1.71
Elk City *[1]	115	56	79.5	1.51
Emporia †	101	58	78.4	0.20
Englewood †	108	50	79.6	0.66
Eureka Ranch †	111	47	78.8	2.39
Fort Riley †	100	45	70.2	1.30
Garden City †	104	52	76.6	2.20
Garfield	.....	.....	.....	1.94
Gibson *[1]	110	44	76.6	1.25
Gove *† [1]	108	60	78.8	1.15
Grenola *[1]	110	53	79.7	1.10
Grinnell	.....	.....	.....	1.75
Halstead *	102	50	74.6	0.71
Hays City †	108	49	78.4	0.65
Horton †	101	57	76.8	1.51
Hutchinson †	103	56	75.8	4.34
Independence †	109	54	80.9	2.36
Ionia †	107	49	76.7	0.70
Jaqua †	108	50	75.9	0.62
Johnson †	105	51	77.7	2.72
Kiowa †	114	53	80.0	1.66
Lakin †	106	51	77.6	3.97
Lawrence [1]	98	57	77.9	1.86
Lebo †	103	48	77.4	0.19
Leoti †	107	45	77.2	0.36
Liberal †	109	50	80.8	0.42
Macksville †	112	52	79.7	0.85
McPherson †	101	55	77.9	2.80
Manhattan *[1]	110	56	71.4	2.10
Marion †	103	48	75.5	0.93
Marmaton	.....	.....	.....	0.75
Medicine Lodge	.....	.....	.....	2.30
Minneapolis †	108	53	79.4	0.51
Moriand †	107	42	76.2	1.12
Morton †	107	50	77.6	4.95
Mount Hope *[1]	104	66	78.4	1.18
Ness City †	106	53	81.8	0.47
New Eng. Ranch †	106	50	76.8	1.18
Oberlin †	.....	.....	.....	1.12
Olathe †	102	52	76.1	4.93
Oswego †	109	46	77.0	2.10
Phillipsburg †	107	50	78.4	1.37
Pleasant Dale †	105	50	76.0	0.32
Rome * [1]	108	56	79.3	0.77
Salina †	104	55	81.2	0.33
Sedan †	106	58	80.8	1.26
Topeka	99	54	78.0	2.19
Tribune †	106	48	76.8	1.17
Ulysses [1]	116	48	81.2	1.73
Wakefield *[1]	112	64	80.7	0.42
Wallace a	.....	.....	.....	0.79
Wamego *[1]	105	55	78.3	2.23
Washington †	105	51	76.7	1.43
Wellington *[1]	102	66	81.7	2.69
Winfield *[2]	114	52	81.9	1.58
Yates Center †	100	51	76.2	0.43
Kentucky.				
Alpha *† [1]	96	57	78.9	4.85
Blandville	97	58	76.0	2.82
Bowling Green a *[1]	95	52	72.6	4.06
Bowling Green b †	97	57	76.8	3.84
Caddo †	98	59	80.5	0.46
Canton *† [1]	96	64	75.4	1.44
Carrollton †	100	46	77.6	1.55
Catlettsburg †	.....	.....	.....	3.42
Cromwell †	.....	.....	.....	1.01
Earlington	96	56	76.6	2.40
Eddyville *† [1]	88	63	74.5	2.98
Edmonton †	93	51	73.8	2.54
Elizabethtown	96	52	76.4	1.85
Eubank †	95	48	74.2	1.44
Falmouth †	.....	.....	.....	0.74
Fords Ferry †	100	54	78.4	0.86
Franklin *† [1]	101	65	77.1	3.90
Georgetown	97	.....	.....	.....
Greendale *[1]	92	62	76.8	1.26
Greensburg *† [1]	92	60	73.9	2.97
Harrodsburg †	96	46	75.9	1.48
Henderson †	94	60	78.4	1.41
Hendricks †	.....	.....	.....	1.65
Herbert	98	53	77.5	0.99
Louisa †	94	49	75.0	0.17
Marrowbone †	95	51	74.4	5.38
Matlock *[1]	92	64	76.1	2.00
Mount Sterling †	94	48	75.7	2.36
Munfordville *† [1]	91	56	77.1	3.77
Paducah a †	.....	.....	.....	1.48
Paducah b †	100	61	79.2	1.58
Russellville †	101	58	77.4	3.28
Sandy Hook †	95	43	74.0	0.50
Shelby City *[1]	94	53	72.5	0.75
Shelbyville †	101	48	77.1	1.04
Springfield †	94	50	74.7	2.59
Williamsburg †	.....	.....	.....	4.91
Louisiana.				
Abbeville	98	66	77.4	9.57
Alexandria †	98	60	78.8	1.41
Amite †	100	63	79.2	7.11
Bastrop †	100	61	77.7	5.30
Baton Rouge †	100	64	76.3	8.75
Calhoun †	102	64	79.0	6.60
Cameron † [2]	103	67	82.7	5.13
Cheneyville †	101	59	79.0	0.92
Clinton †	101	58	76.8	3.58
Coushatta a †	.....	.....	.....	2.98
Coushatta b †	101	60	79.2	3.73
Covington †	101	61	77.8	7.54
Davis	100	56	76.8	4.99
Delhi †	.....	.....	.....	4.21
Donaldsonville †	100	65	80.2	5.98
Emilie †	99	66	78.8	8.50
Farmerville	100	62	78.6	6.50
Franklin †	100	63	79.2	8.56
Girard †	107	55	76.4	4.77
Grand Coteau	97	66	78.0	6.54
Hammond †	100	63	79.2	10.46
Houma † [b]	97	69	80.6	7.59
Jeanerette †	100	62	78.4	7.79
Lafayette †	104	63	79.7	7.13
Lake Charles †	100°	64°	79.9°	3.66
Lake Providence †	98	61	78.2	4.26
Lawrence †	98°	62°	81.0°	6.05
Liberty Hill	105	59	80.2	4.41
Many	100	61	79.5	2.53
Maurepas	100	62	79.5	6.73
Melville †	93[1]	62[1]	78.0[1]	4.41
Minden †	105	61	80.4	4.49
Monroe †	101	63	80.9	4.52
Natchitoches †	100	56	77.3	3.52
New Iberia	99	65	79.0	6.59
Oberlin †	96	61	76.7	4.54
Opelousas †	103	58	79.2	7.26
Oxford †	95	57	76.8	1.13
Paincourtville †	99	64	79.3	7.91
Plain Dealing	100	59	77.9	5.02
Plaquemine	100	62	76.4	10.17
Rayne †	103	65	81.0	8.50
Roseland	99	62	78.8	6.09
Schriever †	100	61	78.9	9.11
Shell Beach	97	65	79.2	5.73
Sugar Ex. Station †	99	66	79.8	12.71
Sugartown †	99	56	75.4	2.27
Thibodeaux	.....	.....	.....	7.04
Wallace	97	66	78.6	6.62
West End	.....	.....	.....	4.44
Maine.				
Bar Harbor	92°	48°	68.7°	1.99
Belfast *[6]	89	56	67.7	4.46
Calais †	91	47	68.4	2.24
Cornish *[1]	96	55	70.5	4.70
Easton †	93	45	66.7	2.48
Fairfield	93	45	69.5	2.56
Farmington †	100	42	69.4	1.92
Gardiner	99	49	72.1	2.30
Houlton †	94	47	69.1	3.78
Lewiston	100	53	72.0	1.46
Madison *[1]	100	54	74.4	2.12
Mayfield	96	45	67.7	2.65
North Bridgeton	96	51	70.4	2.90
Orono †	94	44	67.2	2.41
Petit Menan *[1]	75	50	59.8	.....
West Jonesport *[1]	80	51	59.4	.....
Maryland.				
Bachmans Val. *[1]	97	55	73.9	2.98
Benedict †	99	54	79.7°	3.74
Boettcherville *[1]	100	54	73.1	4.10
Charlotte Hall	99	49	77.6	2.91
Cherryfield [2]	.....	.....	76.6	3.52
Chestertown	93	55	76.4	1.97
College Park	100	49	75.8	2.86
Cumberland a †	98	52	75.2	3.23
Cumberland b	99	52	77.0	3.25
Darlington †	96	51	78.0	1.98
Denton	97	54	77.7	1.04
Easton †	95	52	77.3	5.18
Fallston *[1]	93	54	74.4	1.95
Fenby *[1]	96	58	75.7	4.00
Frederick	98	50	76.9	2.10

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Maryland—Cont'd.	°	°	°	*Ins.*
Great Falls *[b]	95	60	77.6	2.11
La Plata †	99	58	82.6	0.56
McDonogh	92	51	75.8	.....
Mardela Springs †	93	56	76.4	7.13
Mt. St. Marys Col.	97	58	80.4	1.29
New Market *[1]	97	52	74.3	2.48
Oakland †	87	38	66.0	3.63
Pocomoke City	96	59	78.3	2.45
Popes Creek [r]	98	50	77.8	.....
Princess Anne	92	60	78.0	1.92
Solomons †	98	60	79.4	2.34
Sunnyside	92	34	66.4	3.91
Taneytown †	.....	.....	.....	2.99
Massachusetts.				
Adams	96	45	70.0	.....
Amherst	94	45	71.4	1.23
Amherst Ex. St'n a.	98	44	71.9	1.60
Amherst Ex. St'n b.	98	48	72.9	1.55
Andover	96	47	71.4	3.42
Ashland	.....	.....	.....	2.69
Bedford	96	48	72.0	3.08
Beverly Farms	98	52	69.5	4.66
Blue Hill (sum't)	97	52	72.4	2.98
Blue Hill (valley)	96	46	72.2	2.67
Boston	.....	.....	.....	3.01
Brockton a	98	52	73.9	2.08
Brockton b	.....	.....	.....	2.56
Brockton c	.....	.....	.....	1.91
Cambridge a	100	50	74.7	2.56
Cambridge b	95	53	74.1	2.88
Chestnut Hill	106	50	75.8	3.33
Clinton	.....	.....	.....	2.70
Concord †	98	43	72.4	3.22
Dudley	96	49	73.0	1.61
East Templeton *[1]	95	55	71.8	1.88
Egg Rock, Nahant	91	54	69.7	.....
Fall River *[1]	92	56	71.6	3.24
Fiskdale	.....	.....	.....	1.85
Fitchburg a *[1]	95	57	72.3	1.73
Fitchburg b	96	49	72.4	1.75
Framingham	98	47	74.2	3.82
Groton a	95	46	70.9	2.09
Hadley	98	43	72.0	1.26
Hingham	.....	.....	.....	3.56
Hyannis	93	56	75.2	0.62
Kendall Green	98	52	74.6	2.84
Lake Cochituate	99	42	72.0	3.61
Lawrence	97	53	73.9	4.25
Leeds	96	42	69.1	0.80
Leominster *[1]	95	54	74.2	2.34
Long Plain *[4]	93	56	70.5	2.04
Lowell a	96	52	73.5	3.00
Lowell b	100	49	72.5	.....
Lowell c	100	51	74.8	.....
Ludlow Center	97	40	69.4	2.03
Lynn a	93	53	71.2	2.34
Lynn b	98	54	72.2	.....
Mansfield *[1]	99	53	71.6	3.40
Middleboro	94	44	71.5	1.20
Milton	95	50	71.8	2.63
Monroe	89	42	67.3	2.76
Monson	96	45	72.9	1.81
Mount Nonotuck	.....	.....	.....	2.02
Mystic Lake	.....	.....	.....	3.45
Mystic Station	.....	.....	.....	3.13
Natick *[1]	93	59	72.8	1.98
New Bedford a	88	55	71.5	0.74
New Bedford b	93	48	72.2	0.80
Newburyport	.....	.....	.....	3.96
North Billerica	103	50	74.3	5.65
Pittsfield	90	42	67.4	3.48
Plymouth *[1]	92	61	72.9	1.08
Provincetown	92	57	72.7	0.46
Randolph	.....	.....	.....	2.50
Roberts Dam	.....	.....	.....	3.27
Salem	.....	.....	.....	3.06
Salisbury	.....	.....	.....	3.81
Somerset *[1]	100	56	76.6	1.68
South Dennis	91	51	72.9	0.62
Springfield Arm'ry.	97	52	76.0	2.52
Taunton b	97	49	74.0	2.64
Taunton c	96	45	72.8	2.41
Taunton d	98	45	74.2	2.41
Turners Falls	94	51	72.3	1.39
Wakefield †	.....	.....	.....	2.73
Waltham	.....	.....	.....	3.16
Webster	.....	.....	.....	1.70
Wellesley	99	48	75.6	.....
Westboro †	95	46	73.3	3.59
Williamstown	90	47	69.2	3.39
Winchendon	.....	.....	.....	1.54
Winchester	.....	.....	.....	3.14
Winthrop	95	54	72.4	3.01
Worcester a	95	52	73.2	3.34
Worcester b	94	52	72.6	3.75
Michigan.				
Adrian	100	43	72.6	2.15
Allegan	102	42	73.4	0.96
Ann Arbor	97	48	72.7	0.83
Arbela [2]	.....	.....	69.8	1.61
Ball Mountain	96	44	70.9	1.73
Benton Harbor	95	43	71.4	0.90
Berlin *[1]	102	43	72.2	1.36
Berrien Springs a *[1]	99	55	74.5	0.90
Berrien Springs b	.....	.....	.....	1.82

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Michigan—Cont'd.	°	°	°	*Ins.*
Birmingham	98	47	73.9	1.78
Bois Blanc *[10]	100	52	69.5	. ...
Boon	99	35	67.6	0.97
Bronson	102	41	72.0	1.19
Calumet	92	45	66.2	2.96
Charlevoix	99	46	69.0	2.29
Cheboygan	99	38	67.0	1.30
Clinton	100	45	74.0	1.03
Crisps *[10]	94	40	65.2	.....
Fairview	97	45	72.8	0.66
Fitchburg	102	43	71.6	3.25
Flint	101	39	70.4	1.43
Frankfort *[10]	88	52	68.8	.....
Gladwin	96	41	69.1	1.36
Grande Pointe au Sable *[10]	92	50	65.8	.....
Grand Rapids	101	40	73.8	0.25
Grape	96	45	73.3	0.41
Grayling	100	35	70.6	1.65
Grindstone City *[10]	95	52	67.1	.....
Hammonds Bay *[10]	98	50	69.0	.....
Hanover	95	43	72.2	1.03
Harbor Springs	97	41	67.4	1.12
Harrison	97	40	67.2	0.98
Harrisville	96	44	67.9	1.01
Hart	92	38	66.9	1.05
Hastings	96	45	72.9	0.72
Hayes	95°	40°	68.5°	2.06
Holland *[10]	91	56	71.4	.....
Howell	101	39	71.6	1.82
Jeddo	98	45	70.4	1.23
Kalamazoo	98	47	74.0	1.34
Lansing	99	46	72.4	1.45
Lathrop *[1]	98	54	68.5	1.56
Lewiston	102	42	70.6	1.43
Lodi	100	39	69.8	0.80
Ludington *[10]	90	40	70.8	.....
Madison	97	48	73.6	0.47
Manistee *[10]	88	56	69.6	.....
Mayville	100	42	72.6	2.27
Middle Island *[10]	96	51	66.1	.....
Mottville	100	43	72.6	3.44
Muskallonge L. *[10]	94	44	63.6	.....
N. Manitou Isl'd *[10]	91	52	69.3	.....
North Marshall	96	43	69.8	1.45
Old Mission	100	48	70.5	0.73
Ottawa Point *[10]	89	51	69.7	.....
Ovid	100	47	73.7	1.28
Paris [c]	99	35	68.4	0.25
Parkville	.....	.....	.....	1.39
Pentwater *[10]	92	56	70.6	.....
Pte aux Barques *[10]	98	56	72.6	.....
Point Betsey *[10]	83	59	70.2	.....
Pontiac	98	45	72.2	2.08
Rawsonville	98	52	75.0	1.10
Rockland	97	44	69.6	0.50
St. Ignace	93	42	66.3	1.17
St. Johns	101	43	73.2	1.30
Sand Beach	98	45	70.6	1.10
Ship Canal *[10]	100	42	68.7	.....
Stanton	100	41	71.9	0.57
Sturgeon Point *[10]	89	50	69.2	.....
Thornville	101	46	74.4	2.36
Thunder Bay I'd *[10]	88	54	68.6	.....
Two Heart River *[10]	96	44	63.0	.....
Vandalia	98	44	72.8	4.69
Vermillion Pt. *[10]	89	38	60.3	.....
Ypsilanti	98	43	70.2	0.99
Minnesota.				
Ada †	98	45	71.4	0.84
Airlie †	104	43	73.6	1.44
Albert Lea †	104	54	78.2	.....
Alexandria a †	.....	.....	.....	0.60
Alexandria b	100	48	73.8	.....
Beardsley †	105	44	74.2	1.32
Belle Plaine	.....	.....	.....	T.
Bingham Lake †	104	44	78.1	0.89
Bird Island	102	45	72.8	0.80
Blooming Prairie *[1]	100	50	74.2	T.
Bonniwells Mills †	107	46	76.2	1.37
Caledonia †	104	47	75.8	0.16
Cambridge †	100	47	72.7	0.23
Camden †	103	43	74.6	1.39
Campbell	105[f]	42[f]	71.9[f]	0.09
Carver † 2	.....	.....	73.8	0.65
Clear Lake †	99	50	73.6	0.84
Clearwater *[1]	100	54	73.5	0.47
Collegeville	100	48	75.0	0.69
Cromwell *[1]	110	50	70.4	0.80
Crookston a †	98	45	73.8	1.37
Dassel *[1]	100	52	75.0	.....
Dawson	.....	.....	.....	1.40
Farmington †	102	46	74.6	0.22
Fergus Falls †	100	51	73.0	0.35
Fort Ripley †	.....	.....	.....	0.05
Grand Meadow †	104	51	75.3	0.64
Granite Falls	104	42	74.0	0.78
Hutchinson *[1]	105	58	76.0	0.85
Jadis † [k]	94	45	70.8	0.70
L Winnibigoshish *[1]	94	56	70.3	0.49
Leech Lake *[1]	90	54	70.2	0.35
Long Prairie †	99	42	71.4	0.35
Luverne †	103	46	73.2	1.05
Maple Plain	102	47	75.0	0.55
Marfield †	93	39	66.5	1.67

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Minnesota—Cont'd.	°	°	°	*Ins.*
Mazeppa[1]	105*	42	73.0	0.50
Medford †	105	40	72.6	0.07
Milan †	100	42	76.0	0.28
Minneapolis *a* †	105	50	76.5	0.27
Minneapolis *b*[1]	100*	48	76.5	0.19
Minnesota City †	103	42	72.4	0.57
Montevideo †	104	46	74.2	0.23
Morris	100	48	74.1	1.18
New Richland *[1]	102	58	74.8	.....
New Ulm	106	60	79.8	2.63
Ortonville †	.....	.....	.....	0.34
Park Rapids †	98	45	71.2	0.34
Perham †	96	.....	.....	.....
Pine River *[1]	94	53	71.0	0.28
Pokegama Falls[1]	98*	42	70.2	0.36
Red Lake	97	50	71.2	1.37
Red Wing †	.....	.....	.....	0.10
Redwood Falls †	.....	.....	.....	1.11
Rolling Green †	99	48	74.2	0.40
Rush City †	100	46	71.6	0.82
St. Charles †	104	42	73.4	0.17
St. Cloud	96	55	74.4	0.51
St. Olaf	100	50	72.4	0.77
St. Peter †	101	48	74.8	0.74
Sandy Lake Dam *[1]	96	54	69.8	0.04
Sauk Center	99	42	71.2	0.04
Sunrise City *[6]	102	42	74.8	.....
Two Harbors †	95	48	65.8	1.29
Wabasha *[1]	108	53	76.2	0.18
Willmar †	99	48	73.3	0.66
Winona	103	57	79.0	1.27
Mississippi.				
Aberdeen †	103	58	80.0	3.55
Agricult'ral Col'ge	98	61	78.3	4.88
Batesville †	100	58	77.2	6.14
Bay St. Louis †	100	68	78.5	8.98
Biloxi †	98	68	79.7	7.28
Briers	96	64	78.4	7.52
Brookhaven †	102	59	79.8	6.13
Canton †	97	64	78.7	6.33
Clarksdale †	99	53	79.4	3.74
Columbus *b* †	106	60	81.2	5.98
Corinth †	100	59	76.8	4.79
Crystal Springs †	99	61	78.6	7.08
Duck Hill † [9]	98	62	78.8	3.20
Edwards	100	64	80.8	5.58
Egypt *[1]	100	65	77.8	.....
Enterprise †	99	60	78.1	6.96
Fayette †	96	62	78.2	7.47
French Camp †	94[6]	55[6]	71.1[6]	6.28
Greenville *a*	99	62	79.5	5.15
Greenville *b* †	103	59	80.4	5.09
Hattiesburg †	100	63	80.6	7.46
Hazlehurst †	100	62	79.2	6.17
Hernando †	98	60	78.0	3.12
Holly Springs †	98	60	77.5	6.18
Itta Bena *† [1]	102	62	80.5	6.21
Jackson †	101	63	80.4	7.19
Kosciusko †	96	60	77.0	7.87
Lake †	98	61	77.8	5.77
Leakesville †	99	64	79.7	7.00
Logtown †	100	63	77.8	8.97
Louisville †	97	59	76.6	5.01
Macon †	102	60	80.2	5.09
Mayersville	102	57	78.6	7.01
Moss Point †	99	67	81.2	5.75
Natchez †	98	61	79.4	3.12
Okolona †	101	59	80.6	1.84
Palo Alto †	99	62	79.1	4.60
Pontotoc †	97	58	77.4	6.05
Port Gibson †	99	60	79.6	5.86
Thornton *† [2]	98	66	80.4	3.40
Topton *[3]	96	66	77.6	4.90
University	95	56	77.4	6.41
Vaiden †	107	57	80.7	5.48
Water Valley *[1]	101	62	76.4	2.27
Waynesboro *a* †	100	61	78.2	7.20
Waynesboro *b* †	100	60	78.9	7.04
Woodville †	100	62	80.2	6.96
Yazoo City †	107	61	81.4	3.93
Missouri.				
Appleton City	99	57	77.0	8.15
Arthur *[3]	.....	50	66.1	3.30
Bagnell †	.....	.....	.....	2.09
Bethany	104	51	77.1	0.37
Big Piney	.....	.....	.....	0.95
Birch Tree	95	52	74.8	2.44
Bluffton *[1]	102	60	79.3	0.61
Boonville †	.....	.....	.....	1.72
Brunswick	97	57	77.2	0.52
Carrollton †	97	57	77.0	1.83
Carthage	.....	.....	.....	3.99
Conception	88	59	70.9	2.75
Cowgill	.....	.....	.....	3.84
Darksville †	103	56	78.6	0.35
Dixon	100	63	79.2	1.72
Downing	.....	.....	.....	2.85
East Lynn *[3]	.....	56	70.8	5.71
Edge Hill *[5]	94	60	75.4	2.61
Eight Mile *[1]	97	60	74.2	4.46
Eldon *[1]	100	58	75.1	1.62
Elmira	105	46	76.8	1.28
Emma *[3]	104	66	78.2	3.10
Fairport	.....	.....	.....	1.67
Farmersville	.....	.....	.....	0.31

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Missouri—Cont'd.	°	°	°	*Ins.*
Fayette	108	52	81.0[6]	0.93[6]
Fox Creek *[1]	98	57	76.4	6.01
Fulton	.....	.....	.....	1.97
Gallatin *[1]	102	58	76.9	1.33
Gayoso *[2]	.....	60	73.2	4.38
Glasgow	104	51	77.2	1.68
Glensted	.....	.....	.....	3.03
Gordonville *† [3]	.....	58	71.6	3.07
Gorin *[3]	108	63	78.2	0.51
Greenville	104	48	77.2	2.55
Grove Dale	105	42	74.6	2.57
Half Way	.....	.....	.....	1.71
Harrisonville †	109	54	77.0	4.28
Hastain	100	50	76.4	2.91
Hermann †	.....	.....	.....	0.57
Houston	97	43	72.1	1.49
Houstonia (near)	.....	.....	.....	3.72
Ironton *[1]	95	55	72.8	3.80
Kidder	102	54	77.2	1.79
Lamar †	95	50	75.5	3.28
Lamonte †	.....	.....	.....	3.29
Langdon †	103	51	75.7	0.26
La Plata *[1]	98	60	77.5	0.25
Lebanon	96	55	75.8	1.67
Liberty	100	56	77.8	3.11
Louisiana Bridge †	.....	.....	.....	0.82
McCune *[1]	103	47	76.8	1.76
Marceline	.....	.....	.....	0.85
Marshall †	102	51	76.4	1.58
Maryville *† [f]	100	60	76.2	1.10
Mexico †	101	52	77.5	2.32
Miami	.....	.....	.....	2.60
Mine La Motte †	94	50	73.2	3.47
Neosho	108	45	76.0	2.38
Nevada	.....	.....	.....	2.10
New Hartford *[1]	103	64	80.2	1.26
New Haven *[1]	104	64	79.6	1.39
New Madrid	.....	58	78.3	3.44
New Palestine	.....	.....	.....	3.83
Oakfield †	97	55	77.3	6.23
Oak Ridge *[4]	.....	61	75.6	2.70
Olden †	101	57	75.2	4.01
Oregon *a*	100	58	77.1	0.52
Oregon *b* †	102	57	77.3	0.47
Osceola	.....	.....	.....	4.41
Palmyra	.....	.....	.....	0.75
Panacea	98	62	79.3	5.16
Phillipsburg *† [1]	94	59	73.9	1.30
Pickering *[3]	.....	52	72.3	1.22
Platte River *[3]	98	58	74.4	2.05
Poplar Bluff	99	56	76.0	2.16
Potosi	94	43	71.0	7.01
Princeton *[1]	105	57	78.4	1.30
Rea *[1]	100	63	76.8	0.86
Round Spring	.....	.....	.....	1.66
St. Charles	98	55	76.4	4.90
St. Joseph †	.....	.....	.....	1.31
St. Louis	97	49	75.5	1.10
Sarcoxie *[3]	.....	63	76.4	5.38
Sedalia	99	58	77.4	2.81
Shelbina	.....	.....	.....	0.90
Sikeston	101	58	77.8	3.06
Steffenville	.....	.....	.....	1.18
Stellada †	99	50	75.0	4.68
Sublett	102	47	76.8	0.60
Tindall †	.....	.....	.....	0.15
Unionville	104	56	82.0	1.12
Vermont *† [1]	98	63	75.3	1.87
Vilas	.....	.....	.....	0.51
Virgil City	.....	.....	.....	4.53
Warrenton	102	54	78.2	0.81
Wheatland	.....	.....	.....	2.65
Montana.				
Anaconda †	.....	.....	.....	1.01
Billings †	103	42	72.4	0.43
Boulder †	90	39	62.7	0.90
Bozeman †	90	42	64.0	2.16
Butte †	88	38	64.2	1.86
Cascade †	.....	.....	.....	0.63
Cokedale *[4]	102	43	68.0	3.19
Columbia Falls †	92	37	63.4	0.40
Fort Custer †	99	47	74.5	1.75
Fort Keogh	103	41	74.0	0.06
Fort Logan †	88	33	60.2	0.51
Fort Missoula	95	34	65.0	1.02
Glasgow †	103	39	73.3	T.
Glendive †	112	48	77.8	0.01
Great Falls †	95	35	67.7	0.45
Hogan †	99	32	67.4	0.07
Kipp †	94	32	63.0	1.16
Martinsdale †	98	35	67.3	1.70
Marysville †	90	37	65.4	1.09
Mingusville †	106	44[1]	78.0[1]	0.03
Musselshell †	104	39	71.0	.....
Pony †	88	40	64.2	3.66
Radersburg †	.....	.....	.....	1.29
Red Lodge †	90	43	62.7	1.31
Utica †	98	35	68.2	0.30
Virginia City †	87	43	65.4	2.81
White Sul. Spgs. †	87	32	61.8	0.95
Nebraska.				
Agee *[1]	108	56	76.7	1.04
Ansley †	106	45	76.0	1.40
Arborville *[1]	112	60	80.4	1.12
Ashland †	108	51	77.4	0.61

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Nebraska—Cont'd.	°	°	°	*Ins.*
Ashton *[1]	110	48	75.0	2.83
Bassett	108	50	76.0	1.73
Beatrice	105	52	77.0	1.39
Beaver City	110	48	77.6	1.92
Bratton *[1]	103	58	78.3	1.06
Burwell	.....	.....	.....	1.64
Callaway †	106	43	74.9	2.38
Cornlea	.....	.....	.....	1.44
Creighton *† [1]	114	44	76.0	1.59
Crete	105	53	76.6	0.61
Culbertson	.....	.....	.....	1.75
Curtis *† [5]	106	53	80.0	0.95
David City *† [3]	102	61	75.0	1.00
Ericson *† [1]	110	60	80.5	2.34
Ewing †	.....	.....	.....	1.78
Fairbury *[5]	105	62	78.2	2.81
Fort Robinson	99	43	71.8	2.96
Franklin †	110	43	77.1	0.11
Geneva †	106	49	76.7	0.43
Genoa †	109	53	77.8	1.00
Gering †	105	52[6]	74.1[6]	2.67
Glenwood *[3]	106	56	69.7	1.83
Hartington †	108	50	77.9	0.58
Harvard *[1]	115	60	78.0	0.68
Hay Springs	102	44	72.7	1.24
Hebron †	105	51	75.8	1.75
Imperial *[1]	106	59	79.2	0.10
Indianola *[5]	110	56	79.8	0.92
Kennedy *† [1]	103	57	73.5	1.30
Lexington †	104	45	72.7	0.94
Lynch *† [1]	110	52	78.7	2.09
Madrid *† [5]	105	54	77.2	1.17
Marquette *[3]	109	55	.....	1.15
Minden †	108	60	76.3	1.05
Mullen *† [1]	100	60	78.3	1.00
Nebraska City *† [1]	100	55	74.3	0.59
Norfolk †	100	51	76.0	1.82
North Loup † [1]	107*	50	77.5	3.43
Oakdale †	110	47	76.6	0.78
Ogallala †	109	.....	.....	0.81
O'Neill *[1]	106	61	77.2	0.79
Ough	.....	.....	.....	0.34
Plattsmouth †	.....	.....	.....	0.37
Ravenna	107	46	75.8	1.39
Red Cloud	.....	.....	.....	0.40
Santee Agency	114	48	79.7	1.27
Seward *[3]	104	55	75.6	1.31
Springview	105	52	76.4	2.55
Stanton *[1]	107	60	74.9	1.22
Superior *[5]	102	68	82.3	2.54
Sutton	105	51	75.6	1.30
Table Rock *† [1]	107	56	77.8	0.98
Tekamah	108	52	77.8	0.90
Turlington †	108	52	77.6	0.59
Wallace *[1]	102	60	76.8	2.32
Weeping Water *[1]	109	48	72.2	0.46
West Point	109	47	78.0	0.40
Whitman *[1]	105	54	71.7	1.70
Wilcox	.....	.....	.....	1.37
York *[1]	108	60	78.2	1.32
Nevada.				
Austin	92	48	68.7	1.27
Battle Mountain *[1]	101	69	82.4	0.50
Belleville *[3]	102	64	76.4	0.17
Belmont	89	46	67.6	0.97
Beowawe *[3]	98	60	86.8	0.00
Candelaria	99	52	75.8	0.53
Carson City	93	38	66.6	0.23
Clover Valley †	.....	.....	.....	0.72
Cortez †	.....	.....	.....	0.68
Cranes Ranch	.....	.....	.....	0.85
Downeyville	108	56	78.2	0.07
Elko *[5]	100	45	75.5	0.95
Elko (near)	100	37	66.4	1.19
Ely	94	42	67.6	1.65
Empire Ranch †	105	45	75.9	3.10
Fenelon *[3]	115	58	72.8	0.00
Genoa	91	38	65.6	.....
Golconda *[1]	104	60	77.8	0.40
Gold Hill	98	50	71.8	0.09
Halleck *[1]	104	46	70.5	0.62
Hawthorne *a* [3]	93	63	77.2	0.86
Hawthorne *b*	97	51	74.1	0.86
Hot Springs *[3]	101	68	81.4	T.
Humboldt *[3]	94	61	74.5	0.00
Lewers Ranch	93	41	67.9	0.40
McGill	93	39	66.0	1.68
Marlette Lake	.....	.....	.....	0.30
Mill City *[1]	103	62	76.6	.....
Osceola	.....	52	.....	1.04
Palisade *[1]	102	60	77.7	1.33
Palmetto	93	45	68.1	1.07
Paradise	100	41	70.5	0.45
Reno *[3]	96	60	72.9	0.00
Reno State Univ'ty.	.....	46	.....	0.31
Ruby †	.....	.....	.....	1.25
St. Clair	98	53	74.3	0.00
Stofiel	95	32	61.1	0.83
Sunnyside	103	50	78.6	1.36
Tecoma *[3]	100	58	72.7	0.30
Toano *[1]	98	48	70.4	0.25
Tybo	95	49	70.4	0.45
Verdi *[6]	95	53	70.3	0.00
Virginia City	91	47	69.8	0.32
Wadsworth *[3]	104	65	82.7	1.19

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Nevada—Cont'd.	°	°	°	*Ins.*
Wells *[3]	94	52	71.0	0.00
Winnemucca *[3]	92	55	75.3	0.39
Yerington	93	51	72.4	0.50
New Hampshire.				
Alstead *[4]	88	51	70.4	1.69
Antrim	.....	.....	.....	2.83
Belmont	.....	.....	.....	2.24
Berlin	93	42	65.7	.....
Berlin Mills	92	38	64.8	2.98
Bethlehem	91	44	68.0	2.64
Brookline *[1]	98	58	72.5	2.86
Concord	96	45	70.4	2.90
Dublin	89	49	69.3	5.40
East Canterbury	94	48	71.9	3.68
Grafton	95	43	69.8	1.80
Hanover	90	50	69.7	2.26
Keene	95	43	69.7	2.56
Lakeport	.....	.....	.....	2.35
Lancaster	95	56	71.4	2.79
Littleton	92	42	66.4	2.05
Mine Falls	.....	.....	.....	2.98
Nashua	98	48	72.6	3.36
Newton	98	46	72.0	3.68
North Conway	99	45	69.0	2.53
Pennichuck Station	.....	.....	.....	2.37
Peterboro	95	43	69.8	3.27
Plymouth	96	46	68.7	2.43
Sanbornton †	92	48	68.8	2.68
Stratford	98	43	68.7	3.33
Weirs Bridge	.....	.....	.....	2.31
West Milan	90	38	64.2	3.47
Wolfboro	.....	.....	.....	2.34
New Jersey.				
Allaire	98	47	74.7	.....
Asbury Park	100	55	76.4	0.97
Barnegat	98	51	74.9	0.95
Bayonne	99	52	76.8	5.00
Beach Haven	94	59	73.5	0.29
Belvidere	99	47	74.3	2.27
Beverly †	102	50	78.4	1.04
Billingsport *[1]	98	64	78.5	0.55
Blairstown	98	48	74.6	.....
Boonton	100	51	75.6	0.88
Bridgeton	100	56	78.8	0.38
Camden	96	56	77.0	2.34
Cape May	90	58	73.0	0.83
Cape May C. H †	93	55	74.2	1.98
Charlotteburg	96	52	75.3	1.09
Chester *	96	50	74.0	1.58
Deckertown	100	48	73.2	0.62
Dover	96	44*	74.2*	0.61
Egg Harbor City	101	47	76.1	0.70
Elizabeth †	101	50	76.8	3.31
Franklin Furnace	98	44	73.8	1.46
Franklinville	98	44	75.7	2.01
Freehold	98	45	73.8	2.61
Friesburg	.....	.....	.....	0.76
Gillette	98	49	74.5	1.56
Hanover	96	45	74.4	1.35
Hightstown	101	52	77.2	1.72
Imlaystown	100	52	78.5	1.69
Junction	.....	.....	.....	2.19
Lambertville	98	50	77.1	2.43
Millville	102	53	79.2	0.86
Moorestown	97	50	76.7	2.05
Newark *a*	96	54	75.2	1.86
Newark *b* †	98	53	76.2	2.60
New Brunswick *a*	101	49	76.8	2.50
Newton	98	47	74.2	1.40
Ocean City	92	50	71.6	0.41
Oceanic	97	60	77.4	2.16
Papakating	.....	.....	.....	0.29
Paterson	98	52	76.3	1.55
Pensauken	.....	.....	.....	4.20
Plainfield	100	55	76.4	1.41
Readington *[6]	102	64	78.2	.....
Ringoes	.....	.....	.....	2.28
River Vale	101	49	74.9	1.84
Somerville	106	49	77.2	1.08
South Orange	96	52	75.4	1.10
Tenafly	95	46	73.8	2.61
Toms River	104	47	77.0	1.13
Trenton	100	55	79.0	2.54
Vineland	105	49	79.1	0.32
Whiting	101	49	78.0	2.24
Woodbine	95	50	75.4	0.29
New Mexico.				
Albert †	101	59	78.0	1.38
Albuquerque †	95	54	76.9	0.42
Alma †	90	52	75.0	1.42
Bloomfield	103	45	76.0	0.01
Chama †	96	41	67.2	1.12
Ciruella	.....	.....	.....	2.76
Deming *[3]	103	72	87.8	0.65
East Las Vegas †	88	48	67.2	2.89
Eddy	103	62	82.4	1.02
Estalina Springs	93	46	67.7	2.10
Fort Bayard	95	51	73.5	1.99
Fort Stanton †	94	48	69.4	1.35
Fort Wingate	96	49	71.8	1.91
Galisteo †	89	52	72.5	1.86
Gallinas Spring †	102	53	76.9	1.02
Gila	.....	.....	.....	1.15
Halls Peak †	86	38	60.1	3.18
La Luz †	103	48	76.4	0.88

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
N. Mexico—Cont'd.	°	°	°	*Ins.*
Las Cruces †	103	48	77.5	0.62
Lordsburg *9	100	74	84.4	0.89
Los Lunas	104	52	77.2	T.
Monero †	95	41	66.4	1.84
Olio †	102	45	77.7	0.22
Rincon †	113[1]	56[1]	85.0[1]	1.45
Roswell	101	53	75.5	0.48
San Marcial †	98	54	76.4	0.26
Socorro †	98	59	78.1	0.29
Springer †	99	54	77.2	0.17
Sulphur Hot Sp'gs †	85	39	61.4	1.57
Taos †	101	42	71.1	1.17
New York.				
Addison	96	43	70.6	2.06
Alfred Center	91	45	68.7	2.96
Angelica †	92	40	67.7	4.14
Arcade	89	41	67.5	2.70
Arkwright	86	46	68.8	.....
Atlanta	.....	.....	.....	2.95
Baldwinsville	94	53	73.0	2.97
Bedford	97	44	73.5	1.32
Big Sandy *10	95	60	71.6	.....
Binghamton †	97	45	71.1	2.88
Bovina Center	.....	.....	.....	5.25
Brentwood	93	47	72.9	2.30
Brookfield	95	42	69.1	0.94
Canton †	90	48	69.4	2.92
Charlotte *10	88	53	68.3	.....
Cherry Creek	.....	.....	.....	1.71
Cooperstown †	90	45	68.5	3.41
Cortland	87	49	68.7	2.53
De Kalb Junction	.....	.....	.....	3.41
Demster	.....	.....	.....	2.60
Dunkirk	.....	.....	.....	0.89
Eden Center	100	45	70.8	2.20
Ellis	.....	.....	.....	2.98
Elmira †	98	46	73.6	1.62
Factoryville	102	41	72.4	2.19
Fleming	94	50	71.7	2.82
Fort Niagara †	93	53	71.3	6.00
Friendship	96	40	67.4	3.99
Glens Falls	95	48	71.1	1.71
Gloversville	92	45	69.1	3.06
Hamilton	97	42	68.7	2.45
Hess Road St'n †	92	46	69.1	3.81
Highmount	91	41	68.2	.....
Honeymead Brook	95	44	72.0	2.56
Humphrey †	94	42	69.4	2.45
Hyndsville	99	43	71.5	2.00
Ithaca	95	48	70.9	3.17
Jamestown *8	92	47	71.6	.....
Kings Station	.....	.....	.....	3.63
Lebanon Springs	94	42	70.0	3.40
Le Roy	94	47	69.6	2.22
Lockport	93	47	70.6	3.19
Lowville	95	43	68.3	1.34
Madison Barracks †	94	54	72.1	2.02
Malone	92	49	67.5	4.87
Middletown	95	53	73.5	4.67
Minnewaska	90	47	70.8	3.11
Mount Morris	96	42	68.9	1.51
Newark Valley	.....	.....	.....	3.01
New Lisbon	92	41	67.2	2.13
North Hammond †	100	48	70.7	3.88
Number Four †	90	45	64.9	2.55
Ogdensburg	97	50	71.0	1.43
Oxford	95	43	70.3	2.73
Palermo †	96	48	70.3	1.85
Perry City	95	44	69.6	2.80
Pine City	.....	.....	.....	1.72
Plattsburg B'ks	96	51	70.2	2.52
Port Jervis	94	47	72.7	1.83
Poughkeepsie	98	43	72.8	2.81
Rome	95	42	70.0	2.01
Romulus	98	50	73.0	2.90
Saranac Lake	91	43	66.3	3.44
Scottsville	.....	.....	.....	3.35
Setauket †	95	52	74.5	0.63
South Canisteo	94	42	69.6	3.34
South Kortright †	93	37	67.1	4.10
Stillwater	99	53	73.6	2.26
Trumansburg	.....	.....	.....	2.34
Varysburg	97	42	69.8	2.40
Wappingers Falls	98	48	75.2	1.46
Warwick	.....	.....	.....	1.39
Watertown	99	49	71.8	2.05
West Chazy	.....	.....	.....	4.37
West Point †	100	50	75.8	1.04
Willets Point	97	54	75.3	4.66
North Carolina.				
Asheville †	90	52	71.6	4.94
Auburn *1	98	66	78.8	5.34
Bailey *1	96	64	77.7[9]	3.33
Bakersville †	88	45	69.2	6.04
Blowing Rock †	81	42	65.6	4.75
Bryson City †	.....	.....	.....	3.82
Chapel Hill †	98	59	79.2	5.80
Currituck Inlet †	.....	.....	.....	6.02
Erie Mills	.....	.....	.....	6.31
Experiment'l Farm	95	54	78.2	5.69
Fair Bluff †	.....	.....	.....	8.80
Falkland *1	97	64	79.5	9.87
Fayetteville †	.....	.....	.....	4.26
Flat Rock	88	47	71.0	4.15
Forest Hill *1	86	59	69.3	4.26

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
N. Carolina—Cont'd.	°	°	°	*Ins.*
Goldsboro	96	60	78.8	7.20
Greenville	.....	.....	.....	6.21
Greensboro	98	60	79.0	5.07
Henderson †	97	60	78.6	3.77
Highlands	82	45	65.0	7.00
Horse Cove †	86	52	70.7	7.05
Lenoir *†	88	62	73.7	4.97
Lilesville	.....	.....	.....	11.19
Littleton †	98	59	78.6	2.46
Louisburg	96	56	78.2	6.12
Lumberton †	95	58	78.8	8.60
Lynn *†	91	.....	72.7	2.89
Mocksville †	91	60	75.5	3.29
Moncure †	96	57[b]	78.2[b]	6.47
Morganton *†	94	50	74.0	3.68
Mount Airy †	93[c]	52[c]	74.8[c]	3.36
Mount Pleasant	94	56	76.8	5.07
Murphy †	.....	.....	.....	3.65
Newbern †	92	60	78.6	9.00
Oak Ridge †	95	59	76.8	6.64
Pantego	.....	.....	.....	6.51
Pittsboro	92	55	74.5	7.10
Raleigh *†	94	65	78.2	5.85
Rockingham †	98	56	78.8	7.76
Roxboro †	96[d]	55[d]	76.8[d]	6.91
Salisbury *a*	92	64	78.6	5.74
Saxon †	99	51	77.4	1.18
Selma	93	59	77.5	10.19
Shelby †	94	56	76.8	2.77
Skyuka	84	52	68.8	2.07
Sloan	94	58	77.8	8.43
Soapstone M't †	94	54	76.4	4.91
Southern Pines †	97	59	78.1	10.48
Stem	97	67	81.0	9.47
Tarboro	97	57	79.3	9.14
Washington	95	67	79.6	11.61
Waynesville †	87	46	69.6	3.84
Weldon †	96	57	79.3	3.97
Willeyton	93	56	77.1	5.00
North Dakota.				
Ashley	106[g]	40[h]	69.4[i]	2.58
Berlin †	103	43	70.1	1.84
Bottineau	96	42	70.6	0.20
Churchs Ferry	100	47	71.0	0.54
Devils Lake	94[e]	50[e]	71.4[e]	0.53
Fargo †	99	44	69.8	0.80
Forman †	104	43	72.6	0.59
Fort Berthold	101	41	73.8	0.20
Fort Stevenson †	98	42	73.0	0.12
Fort Yates †	104	49	75.0	0.38
Gallatin †	104	40	70.8	0.76
Grafton †	100	44	69.5	0.20
Jamestown †	98	50	73.3	0.50
Kelso	103	42	70.8	2.12
Lakota †	96	44	70.0	0.52
Lemert †	104[f]	35[f]	73.8[f]	0.72
McKinney	100	42	72.8	0.31
Minto †	103	41	72.1	0.67
Napoleon †	104	38	73.4	0.59
New England City †	102	44	71.4	0.45
New Salem	104	45	75.5	1.19
Oakdale †	98	48	71.8	T.
Portal †	107	43	72.0	0.35
Power †	107	45	75.2	0.58
St. Johns †	96	46	70.4	0.21
Steele †	103	42	72.5	0.19
University †	97	41	69.6	0.90
Wahpeton †	105	41	72.3	0.22
Wild Rice †	.....	.....	72.6	0.94
Williamsport	104	41	74.2	0.55
Willow City †	101	41	70.1	0.94
Woodbridge †	97	40	67.2	0.37
Ohio.				
Akron	97	47	74.0	1.14
Annapolis	100	41	73.3	1.71
Arcanum	.....	.....	.....	0.22
Ashland	94	48	72.8	1.00
Athens	97	48	74.4	1.38
Atwater	.....	.....	.....	3.21
Auburn	94	40	69.8	2.12
Bangorville	95	50	73.4	1.64
Batavia	.....	.....	.....	0.51
Bellefontaine	98	51	76.8	0.80
Benton Ridge	102	53	76.7	0.99
Bethany	98	51	75.9	0.05
Big Prairie	96	45[k]	72.3[k]	1.36
Binola	101	52	78.0	2.00
Bissells	97	48	71.4	2.05
Bladensburg	96	40	72.6	0.96
Bloomingburg	99	51	75.0	1.47
Bloomington	.....	.....	.....	2.06
Bowling Green	104	42	75.4	0.09
Bucyrus	100	48	75.4	1.20
Caledonia †	.....	.....	.....	2.37
Cambridge	98	44	72.4	2.07
Camp Dennison	100	50	76.7	0.09
Canal Dover	100	42	73.2	1.28
Canton †	96	45	73.7	2.50
Cardington	95	41	71.7	3.49
Carrollton	102	40	73.3	1.48
Cedarville	.....	.....	.....	2.49
Celina	97	48	75.7	0.31
Cherry Fork	100	41	75.3	0.76
Circleville †	.....	.....	.....	2.98
Clarksville	96	46	74.5	0.59

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Ohio—Cont'd.	°	°	°	*Ins.*
Cleveland	93	48	73.1	2.32
Clifton	102	48	75.6	2.61
Coalton	100	39	72.8	1.80
Colebrook	.....	.....	.....	1.63
Cynthiana	96	45	74.7	1.44
Dayton *a*	98	48	76.7	0.75
Dayton *b* †	.....	.....	.....	0.42
Defiance	97	46	73.0	1.11
Demos	95	51	74.1	0.42
Dupont	97	43	72.6	0.72
Ellsworth	95	43	71.2	4.00
Fairport Harbor *10	90	56	72.7	.....
Fayetteville	95	47	75.3	0.81
Findlay	97	46	73.0	0.70
Fostoria	99	52	75.2	0.52
Frankfort	97	56	77.4	2.18
Garrettsville	97	40	70.5	2.54
Georgetown	99	53	78.4	0.41
Granville	97	45	73.9	2.38
Gratiot	97	45	73.4	2.10
Greenfield	97	50	76.4	1.20
Green Hill	102	37	71.9	2.23
Greenville	92	50	72.8	0.35
Guysville	98	42	73.6	0.61
Hackney	99	50	74.7	0.37
Hanging Rock	97	45	74.9	0.79
Harbor	92	45	71.4	1.90
Hedges	105	43	75.7	1.61
Hillhouse	98	46	71.9	2.21
Hillsboro	101	43	75.3	0.62
Hiram	96	46	72.6	1.97
Jacksonboro	99	54	77.1	0.10
Kenton †	100	47	74.8	1.33
Kilbourne	95	53	74.1	0.69
Killbuck	102	44	75.4	0.64
Leipsic	.....	.....	.....	0.93
Levering	100	37	70.9	2.14
Logan	100	43	75.4	2.24
Lordstown	96	40	69.8	3.20
Lowell	102	43	76.3	1.71
McArthur	97	44	74.0	3.13
McConnelsville	99	46	74.3	0.69
Manchester	.....	.....	.....	0.20
Mansfield †	.....	.....	.....	1.41
Marietta *a* †	.....	.....	.....	0.35
Marietta *b*	101	51	76.5	0.42
Marion	99	45	73.9	2.38
Milfordton	100	42	72.4	1.78
Milligan	101	41	72.9	1.70
Millport	99	50	76.1	2.00
Napoleon	100	.....	.....	1.95
Nelsonville	97	42	75.4	1.56
New Alexandria	95	50	74.6	0.67
New Berlin	101	46	74.8	1.72
New Bremen	98	47	74.9	1.03
New Comerstown	98	45	73.2	2.07
New Holland	102	44	74.8	1.97
New Paris	100	48	74.9	0.20
North Fairfield *1	102	56	73.5	1.63
North Lewisburg	99	48	75.4	4.15
North Royalton	102	44	73.4	1.51
Northwood	98	47	74.8	3.34
Oberlin	100	45	74.0	0.84
O. S. University	98	44	74.4	1.06
Orangeville	96	36	71.6	2.40
Pataskala	98	44	73.9	1.32
Plattsburg	98	46	74.2	2.33
Pt. Marblehead *10	88	66	76.6	.....
Pomeroy	99	46	75.9	0.66
Portsmouth *a* †	.....	.....	.....	2.55
Portsmouth *b*	103	50	78.6	3.08
Ridg'v'le Corners	99	46	73.2	1.90
Ripley	97	48	70.8	0.56
Rittman	94	39	70.9	2.49
Rocky Ridge	.....	.....	.....	0.11
Rosewood	95	45	73.4	1.17
Rush Creek	.....	.....	.....	1.05
Sharon Center	.....	.....	.....	0.44
Shenandoah	100	44	73.3	1.00
Sidney *a* †	.....	.....	.....	0.49
Springboro	.....	.....	.....	0.10
Stoutsville	.....	.....	.....	2.81
Sylvania	99	45	72.8	1.67
Thurman	101	46	76.4	1.62
Tiffin †	97	51	75.0	5.16
Upper Sandusky	98	52	76.1	1.75
Vanceburg	94	41	75.1	2.43
Van Wert	98	46	73.7	0.80
Vermillion	97	47	72.7	1.38
Vickery	97	49	73.0	1.77
Walnut	.....	.....	.....	2.35
Warren	100	40	72.8	3.02
Wauseon	100	44	74.5	0.72
Waverly	99	46	76.4	2.74
Waynesville	.....	.....	.....	0.45
Wellington	99	42	74.5	1.85
Westerville	.....	.....	.....	3.15
Weymouth	100	40	71.8	1.39
Wheeler †	.....	.....	72.1	2.15
Willoughby	.....	.....	.....	2.34
Wooster *a*	98	41	71.4	1.38
Youngstown	96	40	73.5	2.84
Zanesville †	.....	.....	.....	2.68
Oklahoma.				
Alva †	112	56	85.6	2.72

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Oklahoma—Cont'd.	°	°	°	*Ins.*
Anadarko †	114	51	82.8	1.58
Arapaho †	106	56	79.2	2.22
Burnett †	108	54	79.8	1.24
Clifton †	110	53	81.2	1.08
Cloud Chief	107	67	85.6	0.97
Fort Reno †	108	56	80.6	1.31
Fort Sill	108	56	80.4	1.91
Fort Supply †	107	55	78.3	2.63
Guthrie †	109	55	82.6	0.83
Keokuk Falls	109	51	81.5	1.24
Mangum †	109	61	83.2	0.68
Ponca	110	60	83.2	0.93
Pond Creek †	110	51	80.6	1.11
Stillwater †	106	51	78.6	0.33
Winnview †	108[d]	56[d]	83.6[d]	2.44
Oregon.				
Albany *a* †	96	46	66.7	0.21
Albany *b* *8	94	58	71.0	0.00
Arlington †	97	48	74.3	0.13
Ashland *a* *8	94	57	73.1	1.98
Ashland *b*	96	43	68.8	1.12
Aurora *8	95	55	72.5	0.00
Aurora (near)	95	42	65.4	0.21
Bandon	67	46	57.5	0.05
Brownsville *8	92	48	70.5	0.04
Burns †	92	28	59.8	0.15
Canyon City †	102	38	71.6	0.68
Comstock *8	100	45	67.5	0.00
Cornelius	97	43	67.6	T.
Corvallis *a*	93	42	64.8	0.10
Corvallis *b* *8	88	52	66.1	0.23
Corvallis (near)	93	47	66.9	0.16
Crook	88	32	62.2	0.42
Detroit	101	39	68.6	0.39
Gardiner	77	48	61.2	0.00
Glenora	100	36	63.6	0.47
Grants Pass *a* †	98	42	69.4	0.06
Grants Pass *b* *8	94	50	71.3	0.00
Happy Valley †	93	33	64.9	0.53
Heppner	93	42	68.6	0.15
Hood River (near)	88	44	65.4	T.
Hubbard	89	40	65.4	0.70
Jacksonville	91	44	68.0	0.26
Joseph	88	39	63.7	0.31
Junction City *8	98	56	68.3	0.08
Klamath Falls	95	40	71.7	T.
Lafayette *8	102	55	67.9	0.00
La Grande †	95	41	69.8	0.03
Langlois	82	44	61.4	0.08
Lone Rock	93	34	62.6	0.32
McMinnville *a* †	97	40	67.0	0.03
McMinnville *b* *8	96	52	68.7	0.00
Merlin *8	100	52	72.7	0.00
Monmouth *8	94	58	77.8	0.00
Mount Angel †	92	47	68.1	0.35
Mount Hood †	77	32	55.0	0.28
Newbridge	102	40	75.2	0.02
Newport	73	42	56.9	0.00
Pendleton	100	41	71.6	T.
Portland *8	96	55	72.5	0.10
Riddles *8	96	48	65.1	0.00
Roseburg *8	93	53	72.3	0.00
Salem *a* *8	84	53	63.4	0.11
Salem *b* †	90	45	65.1	0.19
Sheridan *8	92	57	69.0	0.04
Silverton *8	92	48	66.1	0.15
Siskiyou *8	94	52	75.8	0.00
Sparta	96	37	67.7	0.46
Springbrook	95	48	68.0	0.14
Springfield *8	92	54	71.9	0.00
The Dalles †	97	48	72.7	0.10
Toledo	87	41	62.0	0.00
Umatilla †	.....	.....	.....	0.00
Vale	100	37	72.0	0.42
Vernonia *1	99	45	64.2	0.08
West Fork *8	102	40	69.2	0.10
Williams	94	42	67.0	0.15
Pennsylvania.				
Altoona	97	51	77.5	1.01
Aqueduct	102	47	77.4	2.39
Beaver Dam †	.....	.....	.....	0.65
Blooming Grove *1	101	54	73.3	3.66
Bloomsburg	98	47	74.0	1.97
Brookville †	.....	.....	.....	2.18
Browers Lock	.....	.....	.....	3.83
Carlisle *a*	100	46	76.3	1.96
Cassandra	93	51	74.8	1.69
Chambersburg †	100	44	74.6	0.84
Clarion †	.....	.....	.....	2.34
Coatesville	97	50	75.3	4.61
Confluence †	.....	.....	.....	3.00
Coopersburg	94	52	74.8	2.65
Davis Island Dam †	.....	.....	.....	1.48
Drifton	94[f]	58[f]	77.0[f]	1.75
Du Bois †	.....	.....	.....	2.15
Dyberry †	96	40	69.4	1.26
East Mauch Chunk	99	44	73.4	2.12
Easton	95	49	75.5	0.53
Edinboro *1	92	50	70.9	.....
Elwood Junction †	.....	.....	.....	3.30
Emporium	.....	.....	74.4	2.09
Emporium	94	44	70.5	2.09
F'ks of Neshami'y[1]	.....	.....	75.2	.....
Freeport †	.....	.....	.....	0.98
Gettysburg	.....	.....	.....	1.47
Grampian	98	48	72.2	4.06

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Pennsylvania—Con.	°	°	°	*Ins.*
Greensboro †	.....	.....	.....	3.81
Greenville	97	39	70.2	3.32
Hamburg	101	49	76.0	3.02
Hollidaysburg	.....	.....	.....	2.03
Honesdale	93	48	71.7	0.71
Huntingdon †	103	39	73.2	1.57
Johnstown †	98	44	73.5	1.87
Kane	92	38	68.0	2.13
Kennett Square	96	48	74.8	4.04
Kilmer *[6]	104	51	78.0	1.96
Lancaster	97	50	76.2	2.21
Lebanon	95	47	74.8	4.42
Le Roy †	96	48	71.2	2.98
Lewisburg	100	42	74.4	1.36
Lock Haven †	102	31	69.4	2.96
Lock No. 4 †	.....	.....	.....	2.52
Lycippus	95	49	73.9	3.24
Mahoning †	.....	.....	.....	1.60
Oil City †	.....	.....	.....	1.95
Parker †	.....	.....	.....	3.30
Philadelphia *a*	.....	.....	.....	2.28
Philadelphia *b*	98	56	78.1	0.65
Phœnixville	95	50	75.1	3.06
Pottstown	98	51	77.2	5.96
Quakertown	98	45	73.8	1.97
Reading [2]	.....	.....	76.2	2.39
Ridgway †	.....	.....	.....	1.68
Saegerstown	99	35	69.6	1.47
Salem Corners	95	47	73.0	1.24
Saltsburg †	.....	.....	.....	1.86
Selins Grove	98	54	76.4	1.20
Shinglehouse	94	40	67.9	3.46
Smethport	95	38	68.0	2.03
Somerset	97	38	71.1	3.50
South Eaton	95	45	72.3	1.98
State College	96	45	72.0	2.10
Stoyestown †	.....	.....	.....	3.91
Swarthmore	97	53	79.2	2.04
Uniontown	94	44	71.8	2.77
Warren †	.....	.....	.....	2.88
Wellsboro *† [1]	94	40	67.5	3.88
West Chester	94	53	75.6	3.86
West Newton †	.....	.....	.....	1.72
Wilkesbarre †	100	46	74.4	0.74
York †	98	47	75.2	2.22
Rhode Island.				
Bristol	.....	.....	.....	2.22
Kingston	93	49	72.1	1.35
Lonsdale	.....	.....	.....	3.67
Pawtucket *a*	95	51	73.4	3.74
Providence *a*	97	56	77.0	1.77
Providence *c*	96	52	73.7	1.76
South Carolina.				
Allendale †	96	60	79.3	11.39
Anderson †	.....	.....	.....	3.86
Batesburg †	94	55	76.6	11.74
Blackville †	95	60	79.9	8.18
Blenheim *[6]	92	59	76.4	8.80
Branchville	96	60	82.9	11.73
Camden †	.....	.....	.....	3.97
Central [2]	.....	.....	74.0	6.83
Cheraw *a* †	97	58	78.4	8.39
Cheraw *b* †	.....	.....	.....	9.70
Conway †	.....	.....	.....	11.56
Cross Hill *[1]	93	64	78.3	6.87
Darlington *[1] *c*	90	60	75.8	.....
Edisto	.....	.....	.....	8.04
Effingham †	.....	.....	.....	5.29
Flint Hill †	94	57	77.4	5.46
Florence †	96	60	80.2	6.69
Georgetown †	89	61	77.2	9.97
Greenville †	88	56	75.3	6.84
Greenwood †	100	58	79.6	6.95
Hardeeville	93	64	77.9	17.31
Hollands Store †	92	55	76.6	5.60
Kingstree *a*	92	62	78.2	8.78
Kingstree † *b*	.....	.....	.....	8.60
Little Mountain	96	59	78.0	6.31
Longshore †	92	56	76.4	6.90
McCormick *† [1]	94	64	73.9	12.47
Mount Carmel †	.....	.....	.....	8.82
Pinopolis *[1]	86	65	76.2	10.63
Port Royal †	93	66	80.5	9.93
St. Georges †	94	60	78.4	10.65
St. Matthews †	91	56	77.4	10.20
St. Stephens †	.....	.....	.....	12.87
Santuck *[1]	90	62	76.2	5.77
Shaws Fork *[1]	98	62	78.2	9.64
Simpsonville	98	64	81.5	4.50
Society Hill †	89	59	76.5	6.08
Spartanburg	98	60	79.4	6.65
Statesburg †	87	60	76.5	8.72
Timmonsville *c*	94	68	80.8	.....
Trenton	89	60	77.8	9.50
Trial †	93	60	77.8	8.53
Watts *[5]	93	59	77.9	5.56
Yorkville	93	60	77.4	3.59
South Dakota.				
Aberdeen	103	48	75.4	0.59
Alexandria †	110	44	76.5	0.75
Armour †	110	45	75.4	0.63
Ashcroft †	103	39	69.5	0.69
Bowdle †	.....	.....	.....	1.13
Brookings †	104	39	71.1	0.09
Castlewood †	106	37	73.4	0.37
Clark † [6]	108	42*	77.5	0.43
Cross †	92	37	64.8	3.72
De Smet †	107	44	77.6	0.08
Faulkton †	110	46	74.5	0.30
Flandreau †	109	46	76.2	1.04
Forestburg †	110	41	76.5	0.35
Forest City † [1]	108	53	81.0	0.02
Fort Meade	98	50	73.4	0.57
Fort Sully	111	53	80.7	0.90
Frankfort †	112	43	75.1	1.32
Gary	105	46	75.4	1.53
Greenwood	111	54	80.4	1.58
Highmore † [k]	108	50	78.2	0.42
Hitchcock	.....	.....	.....	0.25
Hotch City †	.....	47	.....	0.49
Howard †	106	48	74.7	0.86
Kimball †	110	52*	78.4*	0.42
Millbank †	107	49	74.2	T.
Oelrichs †	106	43	73.4	2.90
Ordway	.....	.....	.....	0.54
Parker †	108	45	75.6	0.20
Parkston †	.....	.....	.....	0.36
Piedmont	.....	.....	.....	1.06
Plankinton †	112	44	77.3	1.33
Rosebud †	106	47	77.3	0.89
Shiloh †	113	48	78.1	2.84
Sioux Falls †	108	42	76.7	0.90
Tyndall †	108	51	78.2	1.67
Webster †	108	40	74.5	0.78
Wentworth †	107	39*	73.2*	0.20
Wessington †	.....	.....	.....	2.90
Wessington Sp'gs †	111	49	77.3	0.12
Tennessee.				
Andersonville *† [1]	94	53	74.6	4.05
Arlington †	98	58	76.4	4.09
Ashwood *† [1]	94	61	76.6	3.62
Bolivar †	96	52	75.1	4.48
Bristol †	90	50	73.3	3.63
Brownsville †	98	59	78.8	2.75
Byrdstown †	90	48	72.2	3.70
Carthage †	.....	.....	.....	2.27
Clarksville	98	58	78.7	4.10
Clinton †	.....	.....	.....	4.45
Columbia †	.....	.....	.....	4.73
Covington *a* †	95	61	74.6	5.27
Covington *b* †	103	58	79.0	5.88
Dyersburg †	100	58	77.0	5.62
Florence Station	92	57	74.9	3.01
Greeneville †	89	52	73.0	3.20
Hohenwald	.....	.....	.....	5.25
Jacksboro *[4]	89	51	71.1	4.55
Jackson *[1]	96	62	76.4	2.50
Johnsonville †	.....	.....	.....	3.31
Loudon †	.....	.....	.....	2.70
Lynnville *[1]	92	60	73.9	6.63
Milan †	100	57	77.2	2.77
Missionary Ridge [e]	.....	64	73.4	.....
Newport *[3]	93	55	75.0	4.55
Nunnelly *[1]	94	63	75.6	4.40
Palmetto †	.....	.....	.....	8.42
Parksville *[1]	95	55	74.5	4.01
Riddleton †	94	55	76.1	3.51
Rockwood †	.....	.....	.....	1.47
Rogersville *[1]	90	62	73.4	4.48
Rugby *[1]	90	56	71.2	2.61
Savannah *[1]	94	60	78.0	5.37
Springdale *[1]	94	56	74.7	3.10
Trenton	95	58	74.6	4.11
Waynesboro *[1]	92	60	73.6	6.22
Texas.				
Alice †	109[1]	65[1]	84.5[1]	0.90
Arlington †	108	52	81.8	2.02
Arthur City †	.....	.....	.....	1.88
Aurora *[1]	114	62	84.0	2.40
Austin *a* †	104	70	86.0	T.
Austin *b* *[5]	103	68	85.2	.....
Beaumont *[2]	97	73	78.4	7.37
Bellville *[4]	105	82	90.0	1.31
Belton †	109	62	84.8	1.54
Boerne *† [2]	105	66	78.9	0.13
Brazoria †	100	68	80.3	4.10
Brenham †	104	66	84.1	1.45
Burnet *† [1]	100	68	85.0	1.50
Camp Eagle Pass	110	70	87.4	0.15
Childress †	106	61	81.2	1.20
Coldwater †	104[d]	49[d]	78.2[d]	1.19
Coleman *	99	66	.....	1.44
Columbia †	102	66	81.0	2.25
Corsicana *a* †	112	58	82.8	3.12
Corsicana *b* †	104	60	81.0	1.59
Cuero †	106	67	85.0	2.47
Dallas †	108	59	80.3	1.79
Devine	104	61	82.2	0.86
Durham †	.....	.....	.....	2.07
Duval *[1]	110	72	89.3	0.15
Eastland *† [1]	107	66	81.1	6.20
Estelle †	111	60	83.5	0.87
Flower Bluff †	102	69	82.2	1.21
Forestburg †	106	60	80.4	1.53
Fort Brown †	102	63	82.6	6.39
Fort Clark	108	70	86.4	0.05
Fort Hancock	109	41	78.9	1.81
Fort McIntosh	106	70	87.1	1.10
Fort Ringgold †	105	67	84.8	4.00
Fredericksburg † [1]	102*	59	81.5	1.16

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Texas—Cont'd.	°	°	°	*Ins.*
Gainesville †	108	63	81.4	4.25
Golindo	.....	.....	.....	0.50
Graham †	107	52	82.4	1.20
Grape Vine	110	50	82.0	2.08
Hale Center †	103	57	78.4	2.25
Hallettsville †	103	63	82.3	1.84
Hartley †	102	42	75.1	0.25
Haskell †	108	72	86.3	0.33
Hearne †	102	62	81.7	0.70
Hewitt	.....	.....	.....	1.17
Highland	112[g]	58[g]	82.4[g]	3.60
Houston †	104	65	80.3	2.69
Huntsville †	102	62	83.0	1.19
Jefferson *[1]	103	62	82.2	0.76
Kent	.....	.....	.....	0.09
Lampasas *[1]	110	60	83.7	1.22
Llano * † [3]	110	69	83.6	0.60
Longview †	105	62	82.0	5.50
Luling †	106	66	84.8	0.43
Marshall †	102	59	79.0	5.15
Midland †	109	55	82.8	0.60
Mountain Spring †	108	62	81.3	4.88
New Braunfels †	103	65	82.4	1.03
Ochiltree †	.....	.....	.....	2.05
Orange †	98	64	80.3	4.88
Panter * † [2] [z]	115	70	79.2	5.67
Paris †	106	60	81.4	2.13
Roby †	110	57	81.8	0.00
Rockport *[1]	100	74	83.5	.....
Rock Springs †	107	.....	.....	0.95
Round Rock †	108	62	86.6	1.25
San Antonio	106	66	83.3	0.66
San Marcos *a*	.....	.....	.....	0.23
San Marcos *b* †	108	68[g]	85.4[g]	0.25
Sherman †	104	62	80.8	4.30
Sierra Blanca †	100	50	78.2	2.85
Silver Falls †	104	53	78.4	0.27
Sugar Land †	101	68	80.7	3.85
Sulphur Springs	106	58	82.0	2.76
Temple †	104	61	82.4	1.25
Tyler †	104	60	81.6	2.32
Waco †	105	64	83.1	2.60
Weatherford †	107	61	80.8	5.03
Wichita Falls †	108	62	85.0	1.25
Utah.				
Alpine City †	.....	.....	.....	0.55
Blue Creek *[5]	106	60	84.4	0.20
Brigham City	.....	.....	.....	0.05
Castle Gate †	98	51	72.6	0.51
Cisco †	108	55	80.8	0.82
Coalville † [d]	100	34	65.2	0.65
Corinne *[3]	107	60	84.2	0.00
Deseret †	95[g]	48[g]	73.0[g]	0.25
Fillmore †	104	40	71.1	0.34
Fort Du Chesne †	98	41	72.7	0.20
Glendale *[1]	102	55	69.2	.....
Grouse Creek * †	94	41	66.1	0.66
Heber †	95	39	66.6	0.62
Kelton *[5]	106	62	82.0	0.00
Kooshareen	90	42	64.9	0.87
Lake Station *[1]	110	55	75.7	T.
Levan † [2]	.....	.....	71.1	0.95
Loa †	97	39	66.7	1.05
Losee †	101	45	71.1	1.00
Manti †	108	48	78.1	.....
Millville †	.....	.....	.....	0.46
Moab †	105	53	80.4	0.02
Moroni †	.....	.....	.....	0.52
Mount Pleasant *† [1]	97	57	72.8	0.80
Ogden *a* *	102	50	76.9	T.
Ogden *b* *† [1]	94	70	79.9	0.00
Parowan †	94	50	70.2	0.78
Promontory *[5]	103	37	75.8	0.20
Provo City † [2]	.....	.....	73.4	0.30
Randolph †	94	34	58.5	1.28
Richfield †	102	45	69.5	0.83
St. George †	109	53	82.9	0.20
Scipio †	.....	.....	.....	0.68
Scofield †	96	26	59.5	0.71
Silver Lake *[1]	82	36	58.0	.....
Singletree *† [1]	91	45	65.4	3.59
Snowville †	92	38	68.8	0.49
Soldier Summit †	90	27	58.1	1.01
Terrace *[6]	100	60	80.1	T.
Thistle †	108	39	70.5	.....
Vermont.				
Brattleboro	98	47	70.0	1.90
Burlington †	92	56	72.2	1.57
Cornwall	96	51	71.1	2.69
Enosburg Falls †	91	47	66.7	5.51
Hartland †	91	44	66.6	2.83
Irasburg †	91	44	65.8	4.12
Jacksonville	95	35	64.6	1.69
Norwich *[6]	93	48	66.7	2.00
St. Johnsbury	91	47	68.4	1.62
Simonsville	93	40	66.4	2.77
Strafford *† [1]	90	55	67.1	1.22
Vernon *[3]	97	58	71.4	2.34
Wells	92	48	70.5	2.37
Woodstock	96	44	69.8	2.25
Virginia.				
Abingdon †	.....	.....	.....	6.18
Alexandria	99	56	78.8	2.94
Ashland †	96	53	77.1	3.73
Avon †	99	49	76.8	3.55

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Virginia—Con'd.	°	°	°	*Ins.*
Bedford City †	94	56	76.0	1.88
Big Stone Gap †	92	40	70.2	3.94
Birdsnest *† [1]	93	67	79.1	3.80
Blacksburg	90	42	70.7	3.52
Buchanan †	.....	.....	.....	3.20
Buckingham	97	52	77.8	3.03
Cape Charles † *[e]	91*	58	76.4	8.10
Christiansburg †	.....	.....	.....	1.41
Clarksville †	.....	.....	.....	4.90
Dale Enterprise †	97	46	74.0	2.24
Danville †	.....	.....	.....	2.95
Falls Church †	.....	.....	.....	2.68
Fredericksburg †	101	49	77.9	2.51
Grahams Forge	94	48	73.2	2.91
Hampton	94	63	79.1	3.43
Hot Springs	89	36	66.8	1.45
Houston †	99	54	78.4	4.90
Irwin †	96	52	77.8	6.54
Lexington †	93	46	74.0	3.53
Marion †	88	48	71.6[4]	4.95
Nottoway	101	51	79.4	4.35
Petersburg †	96	57	78.2	4.58
Richmond † (near)	102	53	80.1	2.85
Richmond *b* †	.....	.....	.....	5.59
Rocky Mount †	95	52	76.6	3.44
Salem †	91	57	76.6	3.77
Smithville	91	58	78.6	4.77
Spottsville †	97	55	78.7	6.90
Stanardsville	95	54	75.9	3.86
Staunton †	96	50	74.8	1.61
Stephens City †	100	52	77.2	4.00
Warrenton † [7]	95	54	76.2	1.95
Warsaw †	99	58	78.9	4.54
Whittles Depot	100	55	78.6	1.82
Wytheville †	85	49	70.0	6.84
Washington.				
Aberdeen †	94	42	60.8	0.35
Anacortes	.....	.....	.....	0.02
Blaine †	86	40	60.4	0.46
Bridgeport †	104	42	73.8	T.
Chehalis †	94	40	65.0	0.07
Colfax †	90	41	66.2	0.45
Conconully	.....	.....	.....	2.15
East Sound †	80	46	61.2	0.25
Ferry †	96	40	67.7	0.50
Fort Simcoe	94	51	72.2	T.
Fort Spokane	99	40	66.6	T.
Fort Townsend	86	45	61.4	0.20
Hunters †	86	35	60.8	0.25
Kennewick †	101	51	78.4	0.00
Lakeside †	96	54	75.2	T.
Lapush †	75	36	57.6	1.10
Madrone *† [1]	88	43	61.9	0.07
Moxee Valley †	100	41	72.2	T.
Olga †	81	47	60.2	0.54
Pine Hill *[1]	95	57	71.7	0.24
Pomeroy †	98	56	74.0	0.01
Pullman †	94	41	66.6	0.44
Rosalia †	92	35	65.4	0.41
Silver Creek *[1]	94	40	62.6	0.48
Snohomish †	86	43	63.2	0.54
Stillaguamish †	88	41	62.0	0.64
Sulphur	106	47	76.7	0.00
Tacoma †	89	42	63.6	0.25
Union City *† [1]	84	50	62.4	0.27
Waterville †	96	34	67.8	T.
Wenatchee Lake †	94	34	63.9	0.00
West Ferndale †	88	39	62.9	0.62
West Virginia.				
Beverly †	92	46	72.7	2.53
Bloomery †	95	41	70.4	3.66
Buckhannon *a* †	.....	.....	.....	1.94
Buchannon *b* †	92	45	69.5	.....
Burlington †	99	50	74.8	1.82
Central Station *† [1]	97	45	74.5	0.65
Charleston †	.....	.....	.....	0.66
Cloverdale †	.....	.....	.....	4.58
Davis †	86	36	65.5	4.65
Elkhorn †	88	45	71.1	4.84
Ella †	99	52	75.9	2.05
Fairmont †	.....	.....	.....	2.96
Glenville †	94	46	72.4	2.60
Grafton †	93	46	72.0	4.34
Harpers Ferry †	.....	.....	.....	1.56
Hinton †	.....	.....	.....	1.82
Madison †	92	46	72.1	1.22
Martinsburg †	98	50	75.7	2.21
Monarch *† [1]	95	52	74.4	1.91
Morgantown *a* †	.....	.....	.....	3.28
Morgantown *b*	97	44	73.4	3.07
New Cumberland †	100	46	74.6	.....
New Martinsv'le †	97	48	74.8	1.74
Nuttallburg	99	39	72.9	0.50
Philippi †	.....	.....	.....	2.48
Pleasant Hill *[3]	94	56	72.8	3.95
Point Pleasant †	100	50	77.3	0.82
Powellton	94	48	73.2	1.18
Raleigh †	92	44	70.9	1.26
Rowlesburg †	.....	.....	.....	3.99
Sandyville †	97	43	73.7	0.54
Spencer †	97	40	75.3	1.12
Tannery *[1]	100	60	73.3	.....
Weston *a* †	.....	.....	.....	2.48
Wheeling *a* †	.....	.....	.....	1.70
Wheeling *b* †	97	50	76.1	1.46

Meteorological record of voluntary observers, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Wisconsin.	°	°	°	*Ins.*
Amherst	99	41	73.6	1.45
Antigo †	97	35	70.4	0.85
Baraboo †	.....	.....	.....	0.26
Barron †	98	34	70.6	2.40
Bayfield	97°	47°	69.8°	1.30
Beaver Dam	98	58	77.4	0.72
Belleville	98	40	71.2	1.77
Beloit	100	46	74.8	1.23
Black River Falls †	103	35	73.0	2.00
Cadiz *3	.....	46	69.2	2.11
Centralia	99	43	73.0	1.39
Chilton	100	46	73.2	0.29
Chippewa Falls †	.....	.....	.....	0.38
City Point	97	34	68.7	0.36
Columbus	99	37	72.2	1.10
Crandon †	99	41	71.8	1.64
Delavan †	100	40	72.8	1.13
Depere †	98	39	72.4	1.19
Florence †	97	37	67.2	1.05
Fond du Lac †	100	43	72.5	0.62
Grantsburg †	105	45	73.4	0.55
Hartford †	.....	.....	.....	2.01
Harvey †	99	44	72.5	0.61
Hayward †	96	38	70.2	0.56
Hillsboro	100	37	72.1	0.92
Janesville	100	47	74.1	2.00
Juneau †	101	44	73.6	0.66
Kenosha *10	96	60	77.5	.....
Koepenick *† 1	94	50	71.6	1.20
Lancaster †	102	47	72.5	T.
Lincoln † 2	.....	.....	79.8	1.03
Madison †	95	50	74.6	1.75
Manitowoc †	97	47	69.6	1.10
Meadow Valley †	97	41	70.0	1.38
Medford †	99	38	70.2	0.93
Menomonie	103	35	72.0	0.42
Neillsville †	96	38	70.6	0.39
Oconomowoc †	100	45	74.0	0.96
Oconto	97	44	69.9	1.95
Osceola †	104	40	72.4	0.44
Pepin	101	45	76.0	0.19
Portage †	.....	.....	.....	1.05
Port Washington	97	47	71.0	0.38

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Wisconsin—Cont'd.	°	°	°	*Ins.*
Prairie du Chien	107	45	75.6	0.04
Racine *10	93	56	70.8	.....
Reedsburg †	100	43	73.2	0.50
Royalton	99	43	72.0	1.01
Sharon †	97	46	73.4	0.80
Shawano	97	42	70.8	1.68
Sheboygan *10	99	58	72.8	.....
Stevens Point †	98	41	72.4	0.93
Sturgeon B. Canal *10	92	48	68.2	.....
Two Rivers *10	94	45	69.2	.....
Valley Junction †	99	37	70.3	1.01
Viroqua	102	48	73.8	0.89
Watertown †	98	43	72.2	0.94
Waukesha †	97	49	73.8	1.16
Westfield †	99	44	73.0	0.95
Weston *† 3	105	42	73.8	0.05
Whitehall	102	40	77.0	T.
Wyoming.				
Big Horn Ranch †	83	35	59.8	1.05
Camp Pilot Butte †	96	36	68.6	0.50
Fort McKinney	93	45	69.1	0.48
Fort Washakie	93	38	67.2	0.38
Fort Yellowstone †	90	48	66.4	0.99
La Barge	98	34	62.6	0.75
Laramie	88	42	63.2	1.41
Lusk	96	41	69.6	1.97
Saratoga †	88	36	64.6	1.96
Sheridan	93	39	68.5	1.28
Sundance	94	41	66.7	2.01
Mexico.				
Ciudad P. Diaz	104	74	87.4	0.06
Leon de Aldamas	88	50	69.6	8.38
Mazatlan	90	75	82.8	3.11
Mexico	78	50	64.2	3.59
Puebla	79	55	65.5	8.05
Topolobampo *3	95	79	83.2	2.70
Vera Cruz	90	72	80.8	11.04
New Brunswick.				
St. John	77	50	61.1	1.30
West Indies.				
Grand Turk Island	.....	.....	.....	0.93
Hamilton, Ber	85	71	78.7	1.99

Reports received too late to be used in general discussion of weather for July, 1894.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California.				
Campo Seco	.....	.....	.....	0.00
Fort Ross	.....	.....	.....	0.00
Hueneme	.....	.....	.....	T.
Los Alamos	.....	.....	.....	0.00
San Luis Obispo a	.....	.....	.....	0.05
Colorado.				
Surface Creek	96	49	70.2	0.20
Illinois.				
Aurora	102	48	75.1	0.62
Kansas.				
Collyer *2	109	63	77.6	0.35
Grainfield *6	108	68	82.1	1.80
Manhattan b	109	52	79.2	2.27
Monument *1	108	62	79.4	1.75
Quinter *3	108	64	82.0	.....
Sharon Springs *1	108	60	78.6	3.20
Wakeeney *1	106	68	79.8	0.60

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Kansas—Cont'd.				
Winona *3	106	66	75.4	3.12
Missouri.				
Lexington	98	54	75.5	1.93
Mount Vernon	100	49	75.8	4.83
New Jersey.				
Rancocas *	99	56	.....	3.30
New York.				
Wedgwood	98	46	72.1	2.49
South Dakota.				
Farmingdale	.....	.....	.....	1.36
Rochford	.....	.....	.....	3.97
Silver City	.....	.....	.....	4.13
Yankton †	107	53	78.0	0.29
Texas.				
Brady	105	60	81.8	1.65
Happy	104	54	77.1	3.23

Received too late for publication in June, 1894.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
California.				
Anderson *1	88	50	65.9	1.56
Barstow	99	46	70.6	T.
C. Mendocino L. H.	.....	.....	.....	1.61
Cloverdale *1	98	50	65.2	1.71
Gormans Station	.....	.....	.....	0.12
Gridley *1	102	54	69.9	0.74
Kernville	.....	.....	.....	0.00
Middletown *1	94	46	62.7	0.89
Neenach *1	91	46	65.2	0.00
Oroville b	88	46	65.2	0.45
Pilot Creek	.....	.....	.....	3.00
Point Sur	.....	.....	.....	0.72
San Luis Obispo a	.....	.....	.....	0.21
Sharon Springs	87	32	59.3	2.83
Summerdale	.....	.....	.....	1.76
Sutter Creek *b	90	36	57.9	1.11
Washington	.....	.....	.....	2.15
Wenrich Ranch	.....	.....	.....	T.
Illinois.				
Louisville	96	38	74.7	1.91
Martinsville	97	35	73.5	1.10
Iowa.				
Fayette	97	35	72.2	1.80

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Iowa—Cont'd.				
Sutherland	100	39	72.5	3.12
Maryland.				
Upper Marlboro	101	45	73.2	1.39
Mississippi.				
University	98	44	76.0	1.62
Missouri.				
Lexington	94	46	74.4	8.74
Liberty	96	45	77.0	5.92
Montana.				
Silver Bow	.....	.....	.....	1.76
Nevada.				
Elko (near)	88	34	57.2	1.49
New Hampshire.				
Peterboro	91	34	65.1	2.90
New Mexico.				
Los Lunas	101	51	75.4	T.
New York.				
Factoryville	94	35	68.4	1.92
Romulus	92	38	68.4	2.93
Oregon.				
Forest Grove	87	42	58.2	1.97
Jacksonville	82	39	56.7	3.15

Reports received too late, &c.—Continued.

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
Texas.				
Corsicana a	105	50°	77.4°	2.14
Happy d	.....	.....	.....	1.40

Stations.	Temperature. (Fahrenheit.) Max.	Min.	Mean	Precip'n.
West Virginia.				
Moorefield	.....	.....	.....	4.36

EXPLANATION OF SIGNS.

*Extremes of temperature from observed readings of dry thermometer.

† Weather Bureau instruments.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4.
[2] Mean of 8 a. m. + 8 p. m. + 2.
[3] Mean of 7 a. m. + 7 p. m. + 2.
[4] Mean of 6 a. m. + 6 p. m. + 2.
[5] Mean of 7 a. m. + 2 p. m. + 2.
[6] Mean from readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[8] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 3.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An Italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small Roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "[a]" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

NOTE.—The following changes have been made in names of stations: Idaho, Egin, changed to Parker.

TABLE III—*Data from Canadian stations for the month of July*, 1894.

Station.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches.*	*Inches.*	
St. Johns, N. F.	29.82	29.96	— .01	59.7	— 1.3	2.26	.....	w.
Sydney, N. S	29.90	29.96	+ .05	63.8	+ 2.3	2.10	— 2.40	sw.
Grindstone, G. St. L.	29.87	29.90	.....	61.2	.....	3.02	.....	sw.
Halifax, N. S	29.84	29.97	+ .05	64.4	+ 1.9	1.05	— 3.20	s.
Grand Manan, N. B.	29.90	29.95	.....	63.1	.....	1.21	— 2.63	w.
Yarmouth, N. S	29.90	29.98	+ .05	58.8	— 1.2	0.81	— 2.26	sw.
Saint Andrews, N. B	29.87	29.92	.....	62.8	.....	1.07	— 2.96	nw.
Charlottetown, P. E. I.	29.88	29.92	.....	66.3	.....	2.20	— 1.77	w.
Chatham, N. B	29.88	29.90	+ .02	66.4	+ 3.4	3.39	— 1.31	w.
Father Point, Que	29.84	29.87	+ .03	57.9	0.0	3.67	+ 0.45	w.
Quebec, Que	29.59	29.91	+ .04	64.6	— 0.4	6.67	+ 2.71	w.
Montreal, Que	29.72	29.92	+ .04	67.6	— 0.9	2.82	— 1.75	sw.
Rockliffe, Ont	29.42	29.92	+ .03	63.6	+ 0.6	2.18	— 0.94	nw.
Kingston, Ont	29.64	29.95	+ .05	68.2	+ 0.2	3.09	— 0.17	sw.
Toronto, Ont	29.60	29.97	+ .03	68.8	+ 1.3	1.62	— 1.35	nw.
White River, Ont	28.63	29.94	.....	62.8	+ 2.1	2.00	— 1.31	w.
Port Stanley, Ont	29.38	30.00	+ .03	68.8	.....	1.34	— 2.21	nw.
Saugeen, Ont	29.28	29.97	+ .04	66.3	+ 2.8	0.84	— 1.19	w.
Parry Sound, Ont	29.28	29.95	+ .03	66.8	+ 1.8	2.35	— 0.08	w.
Port Arthur, Ont	29.24	29.92	+ .04	63.4	— 0.1	3.24	+ 0.23	w.
Winnipeg, Man	29.09	29.88	— .01	68.6	+ 4.6	0.63	— 2.59	s.
Minnedosa, Man	28.12	29.85	+ .01	67.4	+ 5.9	0.77	— 1.77	w.
Qu'Appelle, Assiniboia	27.70	29.86	.00	69.6	+ 6.6	0.58	— 1.87	nw.
Medicine Hat, Assiniboia	27.66	29.86	+ .02	73.0	+ 5.5	0.81	— 0.91	w.
Swift Current, Assiniboia	27.42	29.90	.00	70.4	+ 5.9	0.62	— 1.50	w.
Calgary, Alberta	26.44	29.88	— .02	62.8	+ 3.8	0.10	— 2.48	w.
Prince Albert, Sask.	28.42	29.88	.....	64.6	.....	1.42	.....	nw.
Edmonton, Alberta	27.62	29.89	+ .01	63.8	+ 2.9	1.40	— 1.70	nw.
Battleford, Saskatchew'n	28.16	29.82	.....	67.8	.....	1.72	.....	nw.
Spences Bridge, B. C.	29.16	29.95	.....	72.0	.....	0.40	.....	sw.
Hamilton, Bermuda	30.08	30.24	+ .10	77.9	.....	4.08	.....	s.
Esquimault, B. C.	30.06	30.09	.....	57.2	.....	0.12	.....	s.
Sable Island	29.98	.....	.....	58.6	.....	3.31	.....	sw.
June, 1894.								
St. Johns, N. F.	29.80	29.94	— .03	51.7	+ 0.3	2.31	.....	s.
April, 1894.								
Prince Albert, Sask	28.37	29.91	.....	36.6	.....	0.94	.....	e.
May, 1894.								
Prince Albert, Sask	28.42	29.92	.....	50.8	.....	0.44	.....	ne.

TABLE IV *a*.—*Hourly sunshine as deduced from sunshine recorders, July*, 1894.

Station.	Instrument.	Percentage for each hour of local mean time ending with the respective hour.																Monthly summary.			
		A. M.								P. M.								Instrumental record.			Personal estimate.
		5	6	7	8	9	10	11	Noon.	1	2	3	4	5	6	7	8	Actual.	Possible.	Per cent of possible.	
																		Hours.	*Hours.*		
Baltimore, Md	T.	83	68	70	87	92	93	94	94	91	90	90	87	86	82	71	64	385.1	455.0	85	69
Bismarck, N. Dak	P.	57	50	61	75	84	85	85	81	78	76	82	76	70	61	51	60	340.1	481.9	71	75
Boston, Mass	T.	32	49	73	76	81	86	88	90	95	83	90	79	64	63	55	20	339.6	465.2	73	49
Buffalo, N. Y	T.	49	45	52	75	83	86	83	86	84	83	82	84	78	72	43	29	333.1	464.9	72	53
Chicago, Ill	T.	75	65	61	80	91	97	96	95	95	97	97	93	87	72	74	76	392.7	460.8	85	81
Cincinnati, Ohio	P.	80	73	77	76	73	78	76	82	74	82	87	84	82	75	54	41	343.5	452.0	76	60
Cleveland, Ohio	P.	73	68	75	72	76	79	78	76	77	80	83	89	80	73	65	66	350.0	461.3	76	58
Colorado Springs, Colo.	T.	96	68	69	84	91	97	97	88	78	71	63	46	26	15	10	10	287.4	453.6	63	47
Columbus, Ohio	T.	58	52	61	85	90	89	90	93	95	92	90	93	90	87	61	51	373.7	454.9	82	58
Denver, Colo	P.	61	79	85	89	93	90	95	96	86	77	62	55	50	37	24	18	322.7	453.9	71	55
Des Moines, Iowa	T.	70	63	70	81	92	96	96	96	97	92	85	81	77	67	64	69	377.3	461.8	82	72
Detroit, Mich	T.	41	34	48	76	90	94	100	100	100	99	97	94	87	71	47	54	366.4	464.3	79	68
Dodge City, Kans	P.	41	55	68	74	74	83	86	84	84	83	76	75	76	77	54	47	331.6	448.2	74	66
Eastport, Me	P.	34	33	36	55	63	65	70	77	77	75	70	73	71	69	70	56	297.4	473.0	63	52
Galveston, Tex	P.	.....	41	74	83	85	73	76	74	71	66	75	73	71	67	50	.....	301.0	426.9	71	71
Helena, Mont	P.	67	69	80	76	76	83	84	85	79	82	78	76	68	73	60	64	359.6	479.5	75	69
Kansas City, Mo	P.	63	56	65	79	75	76	83	80	81	77	84	82	75	65	68	70	337.8	454.3	74	67
Key West, Fla	T.	.....	71	74	74	74	87	87	91	88	82	79	72	74	70	69	.....	327.3	419.5	78	55
Little Rock, Ark	T.	75	61	61	67	75	83	88	93	87	81	76	72	69	56	48	54	320.2	442.1	72	59
Memphis, Tenn	P.	47	51	59	62	70	77	79	78	88	86	80	80	73	60	37	38	307.0	442.1	69	67
New Haven, Conn	T.	7	12	54	68	85	91	93	90	89	87	85	87	75	65	51	47	327.1	460.0	71	62
New Orleans, La	T.	.....	54	60	65	66	74	69	55	61	69	63	51	52	39	34	.....	248.9	427.7	58	57
New York, N. Y	T.	3	2	32	64	78	79	86	80	83	84	79	80	79	57	25	13	283.5	458.3	62	48
Philadelphia, Pa	T.	55	62	64	72	83	88	91	93	90	81	85	84	72	64	53	31	343.3	455.6	75	54
Portland, Me	T.	0	11	38	61	83	87	90	89	81	84	80	80	79	65	30	0	295.0	466.5	63	41
Portland, Oreg	P.	52	55	55	65	72	74	81	85	93	90	92	90	88	88	85	84	372.4	472.2	79	77
Rochester, N. Y	T.	39	39	42	57	70	80	78	82	72	73	65	65	59	51	43	38	284.0	467.8	61	59
St. Louis, Mo	T.	80	71	80	82	89	93	94	90	86	83	80	86	84	82	69	45	372.4	452.0	82	62
Salt Lake City, Utah	T.	83	81	83	89	95	95	95	94	98	89	88	87	78	64	50	51	382.6	460.0	83	63
San Diego, Cal	P.	0	3	17	32	65	91	90	87	90	88	85	85	83	78	49	61	295.0	437.9	68	73
San Francisco, Cal	P.	11	21	33	36	48	66	90	96	97	100	100	97	87	66	39	34	307.0	450.3	68	65
Santa Fe, N. Mex	P.	58	66	91	91	95	93	96	89	75	78	66	55	54	47	24	11	318.9	442.7	72	55
Savannah, Ga	P.	.....	33	53	58	61	54	55	54	56	58	54	54	44	35	11	10	209.9	438.0	48	38
Spokane, Wash	P.	64	65	79	88	95	93	92	86	78	83	83	82	79	79	69	61	386.6	482.9	80	58
Tucson, Ariz	T.	50	66	73	85	93	97	97	95	97	98	88	78	76	60	43	37	354.7	435.2	82	55
Vicksburg, Miss	T.	.....	50	48	54	75	85	87	88	90	78	79	73	69	66	33	43	303.7	437.4	69	70
Washington, D. C	P.	70	66	71	75	83	85	84	86	78	79	77	73	74	68	53	49	336.6	452.8	74	65
Wilmington, N. C	T.	19	19	22	40	50	47	45	47	55	57	48	32	21	12	13	14	158.2	443.7	36	45

TABLE IV *b*.—*Hourly precipitation, July*, 1894.

Station.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Total.
Atlanta, Ga	0.04	0.02	0.02	0.38	0.02	0.03	0.03	0.02	0.26	0.24	0.04	0.03	0.00	0.04	0.07	0.08	0.16	0.77	0.49	0.35	0.71	1.49	0.19	0.11	5.60
Baltimore, Md	0.02	0.01	0.02	0.01	0.01	0.00	0.00	T.	0.01	0.04	0.01	T.	T.	T.	T.	0.01	0.47	0.13	0.43	0.23	0.05	0.13	0.05	0.08	1.73
Bismarck, N. Dak	0.05	0.10	0.05	0.02	0.00	T.	0.01	0.01	T.	0.00	0.00	0.00	T.	T.	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.03	0.27
Boston, Mass	T.	T.	0.09	0.08	0.12	0.22	0.64	0.05	T.	T.	0.01	0.05	T.	0.78	0.34	T.	0.01	0.12	0.40	0.09	0.05	0.04	0.01	T.	3.11
Buffalo, N. Y	0.16	0.05	0.01	T.	0.13	0.26	0.26	0.04	0.02	0.02	0.00	0.06	T.	0.00	0.20	0.27	T.	T.	0.06	0.00	0.00	T.	0.11	0.16	1.81
Chicago, Ill	0.00	0.00	0.00	0.00	0.00	0.03	T.	T.	0.35	0.18	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.00	0.00	0.08	T.	0.02	0.01	0.00	0.67
Cincinnati, Ohio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.00	T.	T.	T.	T.	0.00	T.	0.01	T.	0.03	T.	0.05	0.04	0.00	0.00	0.13
Cleveland, Ohio	T.	T.	T.	0.10	0.23	0.09	T.	T.	0.01	T.	0.05	0.05	T.	0.20	0.08	T.	0.38	0.30	0.56	0.14	0.01	0.06	0.08	0.20	2.24
Denver, Colo	0.20	0.03	T.	T.	T.	0.02	0.20	0.19	0.06	T.	T.	T.	T.	0.00	T.	T.	0.21	0.08	0.13	0.13	0.08	0.10	0.16	0.54	2.13
Detroit, Mich	T.	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	0.00	0.00	0.00	0.00	0.07	1.00	0.06	0.18	0.08	T.	0.28	0.20	0.04	0.15	2.06
Dodge City, Kans	0.06	0.01	0.01	T.	T.	0.01	0.05	0.02	T.	T.	0.00	T.	T.	0.01	T.	0.02	T.	0.81	0.21	0.12	T.	T.	0.01	0.71	2.05
Duluth, Minn	0.23	0.19	0.11	0.02	0.02	0.00	0.00	0.01	0.01	0.03	T.	0.01	0.04	0.05	T.	T.	T.	0.00	T.	0.01	T.	0.03	0.04	0.03	0.84
Eastport, Me	0.05	0.08	0.00	0.00	0.00	0.00	0.00	T.	0.02	0.09	0.04	0.03	0.03	0.06	0.02	0.04	0.03	0.05	0.06	0.36	0.13	0.06	0.04	0.00	1.21
Galveston, Tex	0.00	0.00	0.02	0.22	0.01	0.39	0.13	0.49	0.41	0.56	2.21	0.22	1.03	0.07	0.05	0.06	0.03	0.03	0.04	0.01	0.02	0.10	0.06	0.07	6.23
Indianapolis, Ind	0.25	0.05	T.	0.10	0.00	0.00	0.15	0.20	0.22	0.13	0.08	T.	0.00	T.	0.00	0.00	0.00	0.11	0.06	T.	0.00	0.00	0.00	0.00	1.35
Jacksonville, Fla	0.00	0.00	0.00	0.00	0.01	0.01	0.00	T.	0.17	0.04	0.43	0.64	1.03	0.33	0.64	1.08	0.52	0.69	0.59	0.53	0.19	0.11	0.07	0.02	7.10
Jupiter, Fla	0.20	0.00	0.00	0.10	0.10	0.13	0.27	0.00	0.15	0.15	0.40	0.90	0.35	0.00	0.00	0.00	0.00	0.15	0.02	0.18	0.20	0.00	0.00	0.30	3.60
Kansas City, Mo	T.	0.01	0.64	1.04	0.27	0.18	0.23	0.67	0.98	0.21	0.06	0.03	0.00	0.00	0.00	T.	T.	T.	0.00	T.	T.	T.	T.	0.02	4.34
Key West, Fla	0.00	0.10	0.04	0.01	0.02	0.04	0.06	0.04	T.	T.	0.03	0.26	0.27	T.	0.19	0.78	0.06	0.11	0.05	0.03	T.	T.	0.00	0.00	2.30
Marquette, Mich	0.03	0.01	T.	0.01	T.	0.01	T.	0.05	0.21	0.01	0.02	T.	0.03	T.	T.	0.18	0.49	0.02	0.03	0.08	0.01	0.01	0.05	0.35	1.00
Memphis, Tenn	0.13	0.09	0.03	0.31	0.07	T.	0.13	0.22	0.71	0.15	0.14	0.32	0.05	0.05	0.10	T.	0.05	T.	0.05	0.01	T.	T.	0.35	0.25	3.27
Milwaukee, Wis	0.02	0.01	0.02	0.03	0.05	0.02	0.01	0.08	0.06	0.04	0.00	0.07	T.	T.	0.00	T.	T.	0.64	T.	0.00	0.00	0.00	0.00	0.00	1.05
Nantucket, Mass	0.02	0.01	0.03	0.02	0.08	0.05	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.29
Nashville, Tenn	0.24	0.27	0.21	0.38	0.18	0.17	0.19	0.08	0.10	0.08	0.03	0.04	T.	1.10	1.11	T.	0.06	0.06	0.02	0.19	0.52	0.15	0.07	0.19	5.44
New Orleans, La	0.00	0.00	0.00	0.00	0.05	0.10	0.60	0.12	0.16	0.52	0.50	0.55	2.40	0.65	1.66	2.46	1.20	0.13	0.21	0.05	0.09	0.02	0.01	0.03	11.51
New York, N. Y	0.08	0.06	T.	0.00	0.00	T.	T.	0.01	T.	T.	T.	0.23	0.50	0.49	0.54	0.05	0.00	T.	0.64	0.01	0.03	0.17	0.01	0.01	T.	2.83
Norfolk, Va	0.11	0.00	0.00	0.00	0.00	0.00	T.	0.02	0.01	0.03	0.13	0.01	0.01	T.	0.48	0.07	1.14	0.67	2.03	0.37	T.	0.00	2.20	0.53	7.81
Omaha, Nebr	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13	0.03	0.03	0.16	0.03	T.	T.	T.	0.00	T.	0.41
Philadelphia, Pa	0.01	T.	0.01	T.	0.01	T.	T.	0.01	T.	0.00	0.05	0.04	0.02	0.03	0.04	0.01	T.	0.17	0.18	0.13	T.	0.04	T.	T.	0.75
Pittsburg, Pa	0.04	T.	0.00	0.08	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.00	T.	0.00	0.01	0.08	0.05	0.03	0.03	0.31	0.13	0.09	0.11	0.10	1.12
Portland, Me	0.11	0.04	0.17	0.22	0.01	0.01	0.02	0.07	0.02	0.06	0.26	0.66	0.12	0.09	0.13	0.11	0.17	0.10	0.01	T.	T.	0.06	0.08	0.43	2.96
Portland, Oreg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.10
Rochester, N. Y	0.00	0.06	0.18	0.25	0.20	0.10	0.09	0.20	0.19	0.07	0.10	0.16	0.21	0.07	0.20	0.17	0.08	0.00	0.04	0.07	0.00	0.00	0.15	T.	2.65
St. Louis, Mo	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.06	T.	0.00	T.	0.02	0.01	0.10	0.01	T.	T.	0.00	0.71	0.16	0.07	0.05	1.31
St. Paul, Minn	T.	0.03	T.	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.02	0.05	0.01	0.02	T.	T.	T.	0.00	0.00	0.00	0.14
Salt Lake City, Utah	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.01	T.	0.00	0.27	0.02	0.02	0.31	0.05	0.08	0.02	0.00	0.78
San Diego, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
San Francisco, Cal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.
Savannah, Ga	0.12	0.65	1.00	0.50	0.55	0.22	0.33	0.17	0.13	0.24	0.60	1.17	0.47	1.13	0.35	1.78	0.50	0.17	0.17	1.65	0.72	0.32	0.20	0.04	13.18
Seattle, Wash	T.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	0.00	0.00	T.	0.00	0.00	T.	0.00	0.01	T.	0.01	T.	0.14
Vicksburg, Miss	0.69	0.82	0.22	0.04	0.02	0.02	0.46	0.01	T.	T.	T.	0.42	0.12	0.81	0.84	0.13	0.56	0.73	1.18	0.18	0.03	0.00	0.00	0.71	7.99
Washington, D.C	0.12	0.04	0.06	0.01	0.07	0.01	T.	T.	0.01	0.01	0.03	T.	T.	0.05	0.04	0.16	0.48	0.09	0.19	0.13	0.07	0.38	0.02	0.04	2.07
Wilmington, N.C	0.21	0.65	0.07	0.07	0.42	0.04	0.47	0.29	0.46	0.46	0.72	0.70	0.02	0.65	2.39	0.30	0.17	0.13	0.08	0.12	0.20	0.12	0.24	0.05	9.03

TABLE V.—*Mean temperature for each hour of seventy-fifth meridian time, July, 1894.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	78.2	77.0	75.8	74.7	73.4	72.4	71.4	73.1	76.3	79.9	83.0	85.8	88.2	89.7	90.7	91.4	92.4	92.2	91.3	89.5	86.5	83.5	81.3	79.4	82.4
Albany, N. Y	68.4	67.7	67.4	66.8	66.2	66.6	68.2	70.9	73.5	76.0	78.6	79.8	80.6	81.4	81.6	81.6	80.6	79.2	77.3	75.1	72.8	71.4	69.9	69.1	73.8
Alpena, Mich	63.5	62.5	61.3	60.3	59.5	59.3	61.8	66.3	69.1	70.8	72.2	73.6	73.3	73.0	73.4	72.9	71.8	71.4	70.5	69.1	68.3	66.8	65.7	64.6	67.5
Amarillo, Tex	73.0	71.3	70.2	69.5	68.6	67.9	67.4	67.9	70.6	74.0	76.5	78.5	80.7	82.5	84.0	85.0	85.8	85.9	85.5	84.8	82.2	78.7	76.1	74.3	76.7
Atlanta, Ga	71.5	70.8	70.2	69.4	69.1	68.9	69.5	71.6	73.4	75.6	77.8	79.5	81.3	82.5	83.1	82.7	82.4	79.4	78.6	76.2	75.1	73.8	73.2	72.2	75.3
Augusta, Ga	72.6	72.3	71.7	71.2	70.7	71.1	72.5	74.6	76.7	78.5	79.9	81.8	82.8	83.3	83.1	83.2	82.5	81.1	79.3	77.8	76.2	75.2	74.1	73.5	76.9
Baker City, Oreg	63.9	61.6	60.0	58.7	56.9	55.5	54.2	53.6	55.5	60.3	65.2	68.7	71.4	74.2	76.7	78.6	79.4	79.8	79.0	77.4	75.6	72.7	69.6	66.7	67.3
Baltimore, Md	72.8	72.0	71.0	70.4	69.7	69.9	71.8	75.2	77.3	79.6	81.5	82.7	83.6	84.4	85.0	85.1	83.3	81.8	80.1	78.0	76.8	75.8	74.6	73.4	77.3
Bismarck, N. Dak	68.2	66.3	65.2	63.6	62.1	61.0	60.6	64.4	67.9	72.8	78.5	81.6	84.1	85.4	85.8	86.8	86.6	86.6	85.7	84.1	81.4	78.6	73.1	70.4	74.9
Boston, Mass	69.1	68.3	67.9	67.5	67.1	67.5	69.2	72.1	74.1	75.9	77.0	77.8	78.4	77.7	77.3	77.4	77.4	76.7	74.3	72.8	71.8	71.0	70.3	69.7	72.8
Buffalo, N. Y	68.4	68.0	67.7	67.3	66.6	67.1	68.2	70.1	71.7	73.0	73.5	74.1	74.6	75.2	75.3	75.4	75.2	74.4	73.4	72.3	71.6	71.1	69.6	68.9	71.4
Charleston, S. C	76.5	76.1	75.8	75.4	74.9	74.7	75.7	77.5	78.7	80.2	81.9	83.0	83.2	82.6	82.4	81.8	80.2	79.6	78.5	77.3	76.9	77.1	76.8	76.7	78.5
Charlotte, N. C	71.1	70.7	70.2	69.7	69.2	69.1	70.0	72.5	74.0	76.4	78.1	79.3	80.6	81.9	82.6	83.0	82.3	81.5	78.6	76.3	75.2	73.9	72.8	72.0	75.5
Cheyenne, Wyo	61.5	60.5	58.8	57.7	56.7	56.0	55.3	58.0	63.9	68.8	72.3	74.8	76.3	76.8	77.7	77.9	78.1	76.2	75.1	74.2	71.8	68.1	65.5	63.4	67.7
Chicago, Ill	70.5	70.1	69.2	68.6	68.0	67.9	68.7	70.9	72.6	74.3	74.7	75.0	74.6	75.6	76.1	76.9	77.2	77.1	70.9	75.9	74.5	73.6	72.9	72.0	73.1
Cincinnati, Ohio	73.6	72.8	71.7	70.6	69.6	68.7	68.9	71.7	74.8	77.6	80.0	81.6	83.0	83.6	84.8	85.5	85.6	85.0	84.5	82.3	80.8	78.9	76.9	75.3	77.8
Cleveland, Ohio	69.4	68.7	67.8	67.0	66.4	66.4	67.3	71.0	73.4	75.5	76.7	77.6	78.0	77.2	78.1	78.8	79.0	78.4	78.0	76.5	74.6	73.1	71.3	70.3	73.3
Colorado Sp'ngs, Colo.	62.2	61.2	59.9	58.6	58.0	57.8	57.4	59.1	62.4	66.5	69.5	72.1	74.0	75.2	75.8	76.0	74.8	73.7	72.6	71.7	69.5	67.7	65.6	63.9	66.9
Columbus, Ohio	71.4	69.8	69.0	67.8	66.9	66.7	68.1	70.8	74.6	78.0	80.5	82.3	83.8	84.6	85.0	85.3	84.3	84.1	82.6	79.9	77.8	75.7	74.1	72.4	76.5
Denver, Colo	68.5	66.7	65.5	64.5	63.1	62.3	61.1	61.3	64.5	68.5	72.9	76.8	79.8	81.8	82.8	82.3	80.8	80.4	78.8	77.2	75.8	73.7	71.5	69.5	73.4
Des Moines, Iowa	75.0	73.6	72.3	71.2	70.2	68.8	68.1	69.4	73.4	77.2	80.6	83.2	84.9	86.1	87.0	87.5	87.5	87.6	87.0	85.5	83.4	81.1	78.7	76.5	79.0
Detroit, Mich	68.8	67.9	67.2	66.4	65.8	65.4	66.8	70.4	72.4	74.9	77.3	79.3	80.6	81.6	81.8	81.4	81.3	80.5	78.5	76.1	73.5	72.0	70.5	69.5	73.8
Dodge City, Kans	71.5	70.8	70.0	68.9	68.0	67.1	66.5	68.8	72.6	76.4	80.7	84.5	87.2	88.7	90.1	90.2	89.4	88.2	87.2	84.5	80.9	77.1	74.0	72.5	78.2
Duluth, Minn	64.5	64.1	63.7	63.0	62.5	61.8	62.3	64.1	66.1	67.9	70.0	71.8	73.7	74.6	74.4	74.6	74.6	74.6	74.0	72.2	70.2	68.8	66.9	65.5	68.6
Eastport, Me	54.9	54.8	54.8	54.5	55.1	57.0	58.7	61.0	63.0	64.3	65.4	66.1	65.4	65.5	65.0	64.9	63.6	61.5	59.8	58.9	57.0	56.8	55.7	55.4	60.0
El Paso, Tex	78.1	77.0	75.7	74.8	73.0	71.3	69.8	69.6	73.1	77.1	80.8	84.1	86.7	88.5	90.0	91.3	92.5	91.6	91.0	89.8	87.1	84.0	81.7	79.5	81.6
Fort Smith, Ark*	76.8	75.3	73.8	72.4	71.6	70.5	70.5	73.6	77.4	80.8	83.6	85.7	87.9	89.7	90.2	90.5	91.2	90.6	88.9	86.1	84.5	82.3	80.3	78.6	81.8
Galveston, Tex	80.2	80.0	79.6	79.4	79.2	78.7	78.3	79.3	80.2	80.7	81.7	82.5	82.5	82.8	83.3	83.4	83.2	82.7	82.3	81.4	81.0	80.7	80.5	80.2	81.0
Grand Haven, Mich	67.2	66.4	65.6	65.1	64.5	64.3	65.9	67.9	70.5	72.1	72.6	73.5	73.9	74.0	74.7	73.6	74.5	74.7	74.3	72.7	71.2	70.0	69.3	68.2	70.3
Havre, Mont	65.6	63.7	61.4	59.3	57.0	55.4	53.9	57.5	62.9	67.5	72.7	76.4	79.2	81.5	82.6	83.9	84.9	84.8	85.0	84.0	81.8	77.2	71.6	68.2	71.6
Helena, Mont	65.9	64.2	62.4	61.3	59.8	58.6	57.5	58.0	61.4	63.7	66.4	69.3	72.3	75.1	76.5	77.9	79.0	79.0	78.7	78.2	76.8	74.0	70.5	67.7	68.9
Huron, S. Dak	68.5	66.2	64.5	63.0	61.5	60.1	60.1	65.3	70.5	75.9	80.4	83.6	85.9	87.8	89.1	89.5	89.2	88.4	87.1	82.5	78.1	74.5	71.5	71.5	76.3
Indianapolis, Ind	70.2	69.2	68.2	67.0	66.1	65.8	67.5	71.5	75.2	78.6	81.5	83.3	84.3	85.3	85.9	86.4	85.8	83.8	82.5	80.3	77.6	75.5	73.7	71.8	76.5
Jacksonville, Fla	76.1	75.8	75.5	74.9	74.8	74.6	76.5	78.5	80.4	82.1	82.7	84.1	84.3	84.7	83.2	81.7	81.2	80.0	78.9	78.3	77.1	76.7	76.5	76.4	79.0
Kansas City, Mo	74.3	73.2	72.4	71.5	70.7	70.1	69.8	70.7	73.1	75.5	77.8	80.0	81.5	82.9	83.7	84.3	84.8	84.5	83.4	81.8	80.5	78.7	76.9	75.5	77.4
Key West, Fla	80.3	79.9	79.6	79.5	79.3	79.3	81.1	83.0	84.1	84.8	85.3	85.5	85.1	85.5	85.4	84.6	84.5	83.7	82.7	82.0	81.6	81.0	80.9	80.7	82.5
Knoxville, Tenn	70.8	70.1	69.1	68.5	67.7	67.6	68.1	70.5	72.8	75.9	77.8	79.7	81.0	81.8	82.0	81.0	81.3	80.9	79.7	78.0	76.4	74.7	73.3	72.0	76.0
Lander, Wyo	62.5	60.9	59.7	57.4	55.7	53.9	52.9	55.8	63.6	68.6	72.1	74.3	77.5	79.5	80.5	80.8	81.7	81.2	79.9	78.6	74.6	69.3	66.8	64.8	68.8
Little Rock, Ark	73.4	72.3	71.9	71.2	70.5	69.8	70.0	71.9	74.6	78.1	81.0	83.3	85.0	85.5	85.8	85.5	85.7	84.3	83.2	81.3	78.5	76.6	75.5	74.2	77.9
Louisville, Ky	72.8	71.5	70.8	69.9	69.0	68.5	69.7	72.1	75.2	78.6	81.4	83.2	84.8	86.2	85.9	86.4	86.3	84.6	83.5	81.1	78.6	77.1	75.3	73.9	77.8
Lynchburg, Va	70.9	70.0	69.1	68.6	68.0	67.9	69.6	73.6	76.6	79.3	81.5	83.2	84.7	85.4	85.7	84.4	83.1	81.9	80.0	77.5	76.1	74.6	73.1	71.8	76.5
Marquette, Mich	64.4	63.6	63.2	62.7	62.0	62.1	63.4	65.9	67.3	68.2	69.9	70.3	70.9	71.1	70.9	70.1	69.7	69.7	69.3	68.5	66.2	65.7	64.8	64.5	66.9
Memphis, Tenn	73.4	72.5	71.4	70.8	70.5	70.0	71.0	73.8	75.7	78.2	80.3	82.3	83.2	84.1	84.7	84.8	84.6	84.3	82.5	80.9	78.3	76.6	75.4	74.2	77.6
Milwaukee, Wis	68.8	68.0	67.1	66.5	65.9	65.6	66.1	69.5	72.4	75.1	76.1	77.0	77.1	77.2	76.6	77.5	77.1	77.4	76.9	75.7	73.6	71.9	70.8	69.6	72.5
Montgomery, Ala	74.6	74.1	73.2	72.7	72.2	72.1	73.2	75.0	77.2	79.6	82.1	83.9	86.1	86.0	86.0	86.2	85.0	83.6	81.5	79.5	77.6	76.6	75.6	74.9	78.7
Moorhead, Minn	64.7	62.7	61.1	60.2	59.1	57.7	58.7	62.3	67.0	71.0	74.2	77.5	79.9	81.8	83.4	84.4	84.4	83.2	81.4	79.1	75.0	71.7	69.4	67.0	71.5
Nantucket, Mass	64.8	64.5	64.5	64.4	64.5	66.2	68.1	69.8	70.4	71.2	72.0	72.1	72.0	71.5	70.8	70.4	69.2	68.0	66.6	66.2	65.6	65.2	65.1	64.9	67.9
Nashville, Tenn	71.3	70.5	69.7	69.0	68.3	67.9	68.7	71.5	74.5	77.3	79.8	81.6	83.1	83.0	84.3	84.8	84.4	83.6	81.8	78.8	77.0	75.3	73.7	72.3	76.4
New Haven, Conn	67.7	66.9	65.8	65.1	64.7	65.7	68.3	71.8	73.9	75.7	78.1	78.8	79.5	79.3	79.1	78.7	77.8	76.5	74.5	72.8	71.3	70.0	69.0	68.5	72.5
New Orleans, La	75.8	75.5	75.1	74.9	74.6	74.5	75.4	77.2	79.4	80.6	81.9	82.4	82.0	81.6	81.2	81.5	80.8	80.8	80.4	79.3	77.9	76.9	76.3	75.8	78.4
New York, N. Y	71.7	71.4	70.7	70.3	69.8	69.5	70.0	71.5	73.5	75.7	78.3	79.9	80.8	81.9	81.6	81.4	80.6	79.5	78.5	77.2	75.8	74.8	73.6	72.9	75.5
Norfolk, Va	72.4	72.2	71.9	71.6	71.4	71.7	73.1	75.3	77.2	79.3	80.8	82.4	83.5	83.4	83.1	82.4	81.5	79.9	78.0	76.3	75.1	74.4	73.5	73.1	76.8
North Platte, Nebr	69.5	68.0	66.6	65.4	64.1	63.1	62.5	64.4	68.0	71.7	75.1	77.9	80.4	82.8	84.0	85.4	86.0	86.0	84.5	82.4	78.3	74.7	72.5	71.0	74.3
Omaha, Nebr	74.4	73.0	71.8	70.5	69.3	68.2	68.1	70.3	72.6	76.0	78.5	81.0	82.8	84.2	85.3	85.8	86.2	85.3	85.1	83.9	81.3	78.8	77.0	75.5	77.7
Philadelphia, Pa	72.2	71.6	71.0	70.5	70.0	70.4	71.9	73.9	76.7	79.1	81.4	82.8	83.6	84.2	84.5	84.5	83.3	81.9	79.6	77.9	76.1	75.0	73.6	72.7	77.0
Pikes Peak, Colo	35.2	34.9	34.9	34.7	34.5	34.5	34.4	35.1	36.2	37.2	38.0	39.0	39.5	40.2	40.3	40.4	39.5	38.7	37.8	37.3	36.2	35.7	35.5	35.1	36.9
Pittsburg, Pa	71.3	70.5	69.5	68.4	67.9	67.5	69.2	72.0	75.1	77.9	80.0	81.7	82.7	83.5	83.6	83.3	83.4	82.4	80.7	78.5	76.9	75.4	73.7	72.4	76.1
Portland, Oreg	66.9	65.2	62.8	61.0	59.6	58.3	57.0	56.8	57.4	58.7	60.2	61.7	64.6	67.3	70.1	72.2	71.5	76.3	77.3	77.3	76.4	74.6	71.7	69.5	66.6
Rapid City, S. Dak	67.0	66.3	65.1	64.2	63.7	62.8	63.8	66.9	71.5	75.3	77.4	79.4	80.9	81.9	82.8	83.4	84.0	83.5	82.7	80.9	77.0	73.0	70.2	68.5	73.9
Red Bluff, Cal	83.1	81.1	79.0	76.5	73.9	72.4	70.4	68.7	69.4	73.8	77.7	81.9	85.7	88.8	91.4	93.7	95.3	96.8	97.0	97.5	96.4	94.0	90.3	86.5	84.2
Rochester, N. Y	65.1	64.1	63.5	62.9	62.3	63.8	66.9	69.7	73.1	76.4	77.3	78.1	78.4	77.4	77.5	77.5	77.4	76.5	74.3	72.3	70.4	68.6	67.5	66.3	71.7
Roseburg, Oreg	65.0	62.3	59.8	57.9	56.4	54.6	53.6	52.9	54.9	58.1	61.5	64.7	67.8	71.1	74.0	76.5	78.6	80.4	80.7	80.6	78.9	76.3	72.0	68.3	67.0
St. Louis, Mo	75.4	74.5	73.5	72.5	71.9	70.9	71.1	72.9	75.4	78.4	81.0	83.6	85.2	84.8	85.4	85.5	85.7	85.3	84.3	82.8	81.1	78.9	77.7	76.4	78.9
St. Paul, Minn	72.2	70.6	68.5	67.1	65.6	64.6	64.5	68.2	71.5	75.0	78.3	80.7	82.6	84.4	85.3	85.6	86.0	86.0	85.2	83.4	80.7	78.0	75.6	74.2	76.4
Salt Lake City, Utah	72.1	70.4	69.6	68.3	66.7	65.9	65.4	65.6	67.9	71.9	76.3	78.6	81.4	82.9	84.0	84.8	81.3	84.7	84.4	83.0	80.7	77.3	75.6	73.9	75.7
San Diego, Cal	62.4	62.1	61.4	61.4	61.1	61.0	60.9	60.9	61.6	62.9	64.7	65.7	67.5	67.7	68.3	68.5	68.3	68.0	67.5	67.1	65.2	63.8	63.3	63.1	64.3
San Francisco, Cal	53.2	53.0	52.7	52.5	52.0	51.9	51.7	51.7	51.9	52.8	54.2	55.6	57.8	58.7	59.3	59.1	59.6	58.9	58.2	56.7	56.0	54.7	53.9	53.5	55.0
Santa Fe, N. Mex	65.8	64.3	62.8	62.0	60.3	59.2	58.3	60.5	64.5	67.2	69.9	72.3	74.5	76.0	76.7	77.1	76.9	76.3	74.8	73.0	71.2	68.7	67.2	66.2	68.5
Sault Ste. Marie, Mich	58.6	57.9	57.3	57.1	56.1	56.1	57.9	61.4	63.9	66.3	69.0	70.7	72.5	73.1	73.0	72.9	72.3	70.9	68.8	66.6	63.2	62.0	60.6	59.8	64.5
Savannah, Ga	74.4	74.0	73.6	73.5	73.2	73.1	74.5	77.4	79.5	81.5	82.1	82.8	84.0	83.4	82.7	81.3	80.7	79.1	78.0	76.5	75.9	75.4	75.1	74.8	77.8
Seattle, Wash	61.5	60.4	59.3	58.3	57.3	56.4	55.8	55.3	55.7	57.3	58.4	59.9	61.7	64.0	65.9	68.1	69.7	71.1	71.5	72.0	71.1	69.4	66.1	63.4	62.9
Shreveport, La	75.9	74.8	73.8	73.0	72.3	71.6	71.3	73.7	76.9	80.1	83.0	85.0	86.1	86.6	87.5	87.9	87.8	87.9	85.8	83.4	81.2	79.6	78.1	76.7	80.0
Spokane, Wash	67.2	64.9	63.0	61.2	59.2	58.0	56.8	57.2	60.0	63.3	68.3	71.9	75.3	77.6	79.7	80.7	82.0	82.5	82.5	82.5	81.3	79.6	75.3	71.7	70.9
Titusville, Fla	75.9	75.6	75.3	75.0	74.7	74.7	77.4	80.0	81.8	83.5	84.3	84.4	84.4	83.8	83.0	82.6	81.8	80.8	79.7	78.6	78.1	77.5	76.8	76.4	79.4
Toledo, Ohio	70.5	69.3	68.2	67.5	66.8	66.1	67.4	70.2	73.1	75.8	78.1	80.2	81.6	82.4	83.2	83.5	83.3	82.3	81.0	78.5	76.5	74.8	73.2	71.6	75.2
Tucson, Ariz	81.0	79.7	78.2	77.2	75.8	74.4	73.5	73.5	75.6	79.0	84.0	88.0	90.4	92.4	94.5	96.1	96.1	95.4	93.9	92.0	90.0	86.8	84.4	82.4	84.8
Vicksburg, Miss	74.3	73.7	73.4	72.8	72.3	71.8	72.1	74.0	76.4	78.5	81.0	83.1	84.4	85.0	84.8	84.8	84.3	83.8	82.6	80.6	78.3	77.6	76.6	74.9	78.4
Washington, D. C	72.4	71.5	71.0	70.2	69.3	69.5	71.5	74.2	77.1	80.0	82.0	83.8	84.9	86.1	86.0	85.5	84.1	82.5	80.6	78.2	76.4	75.4	74.1	73.0	77.5
Wilmington, N. C	73.5	73.1	72.7	72.4	72.0	72.4	74.0	76.2	77.6	78.8	79.9	80.7	81.2	80.8	80.7	80.4	79.4	78.6	77.3	76.3	75.5	74.8	74.4	74.3	76.5
Winnemucca, Nev	70.4	68.8	67.2	64.6	63.0	61.2	59.2	57.4	58.9	63.1	68.5	73.5	76.6	79.6	82.5	84.2	85.5	85.6	85.2	84.3	83.4	81.5	77.6	74.4	73.2
Yuma, Ariz	86.0	84.8	83.7	83.4	81.5	80.6	80.0	80.0	83.0	86.6	90.6	94.1	96.6	98.9	101.0	102.3	102.6	102.9	101.7	100.2	97.0	93.1	90.4	88.0	91.2

* Record for 25 days.

TABLE VI.—*Mean pressure for each hour of seventy-fifth meridian time, July, 1894.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	28.243	.245	.246	.247	.255	.268	.279	.285	.296	.303	.305	.296	.279	.259	.236	.215	.195	.185	.181	.189	.197	.214	.230	.239	.245
Albany, N. Y	29.902	.900	.900	.900	.908	.913	.920	.924	.920	.916	.907	.896	.884	.874	.870	.867	.862	.862	.870	.878	.890	.894	.899	.902	.894
Alpena, Mich	29.325	.325	.322	.325	.328	.335	.339	.342	.338	.334	.330	.327	.321	.317	.313	.307	.306	.302	.303	.306	.312	.318	.321	.326	.322
Atlanta, Ga	28.912	.910	.910	.910	.917	.929	.943	.954	.950	.960	.958	.947	.930	.913	.897	.888	.882	.884	.889	.893	.905	.915	.917	.916	.918
Augusta, Ga	29.883	.876	.869	.870	.874	.884	.894	.906	.912	.912	.912	.906	.889	.871	.855	.851	.843	.845	.853	.860	.871	.885	.890	.890	.879
Baltimore, Md	29.823	.819	.819	.825	.832	.839	.847	.848	.850	.848	.843	.833	.823	.810	.796	.790	.785	.789	.796	.804	.817	.821	.822	.823	.821
Bismarck, N. Dak	28.240	.245	.243	.247	.253	.258	.262	.266	.268	.267	.261	.255	.241	.232	.225	.214	.206	.201	.198	.196	.203	.214	.226	.230	.236
Boston, Mass	29.845	.842	.841	.845	.851	.857	.861	.863	.860	.858	.851	.841	.832	.828	.819	.815	.814	.819	.831	.840	.851	.850	.851	.847	.842
Buffalo, N. Y	29.272	.268	.264	.265	.270	.277	.284	.289	.292	.294	.295	.288	.282	.274	.225	.258	.252	.250	.248	.256	.267	.275	.276	.274	.272
Chicago, Ill	29.151	.150	.150	.152	.158	.164	.173	.182	.183	.181	.183	.180	.172	.163	.151	.141	.135	.129	.131	.133	.140	.147	.149	.152	.156
Cincinnati, Ohio	29.377	.375	.374	.379	.389	.401	.411	.419	.419	.416	.413	.404	.393	.377	.361	.347	.337	.335	.336	.343	.357	.366	.370	.375	.378
Cleveland, Ohio	29.218	.218	.221	.231	.242	.252	.262	.264	.264	.264	.258	.251	.241	.230	.223	.214	.208	.209	.215	.219	.221	.219	.221	.217	.232
Colorado Sp'gs, Colo	24.203	.200	.198	.196	.195	.197	.205	.213	.216	.219	.216	.214	.208	.198	.184	.178	.165	.163	.168	.173	.178	.187	.203	.206	.195
Columbus, Ohio	29.140	.137	.136	.139	.148	.156	.165	.169	.172	.170	.167	.158	.145	.132	.118	.104	.098	.093	.099	.107	.122	.131	.134	.137	.138
Denver, Colo	24.908	.906	.908	.910	.913	.916	.924	.934	.941	.943	.940	.936	.927	.916	.903	.893	.887	.883	.883	.884	.886	.892	.905	.909	.910
Des Moines, Iowa	29.113	.116	.117	.120	.128	.135	.147	.154	.163	.164	.159	.155	.139	.125	.109	.097	.085	.075	.073	.075	.082	.093	.103	.110	.118
Detroit, Mich	29.238	.237	.236	.237	.244	.249	.256	.263	.265	.265	.262	.257	.247	.235	.223	.213	.208	.205	.208	.214	.228	.238	.236	.239	.238
Dodge City, Kans	27.465	.465	.464	.463	.463	.466	.474	.479	.485	.490	.487	.483	.477	.465	.448	.432	.419	.408	.404	.406	.416	.431	.453	.462	.454
Duluth, Minn	29.240	.237	.239	.242	.245	.255	.267	.272	.273	.267	.264	.257	.245	.238	.231	.224	.219	.216	.215	.218	.221	.232	.237	.239	.241
Eastport, Me	29.846	.843	.848	.852	.861	.869	.873	.873	.874	.871	.861	.854	.845	.837	.830	.825	.825	.829	.835	.840	.847	.848	.850	.849	.849
El Paso, Tex	26.258	.263	.264	.264	.265	.269	.279	.294	.310	.318	.315	.212	.301	.286	.264	.236	.216	.198	.186	.185	.193	.207	.227	.248	.256
Galveston, Tex	30.026	.022	.016	.015	.018	.026	.037	.042	.053	.056	.060	.061	.052	.044	.031	.015	.002	.993	.993	.995	.005	.017	.027	.030	.026
Grand Haven, Mich	29.324	.325	.326	.327	.335	.345	.354	.361	.365	.364	.364	.361	.354	.346	.334	.324	.315	.310	.308	.309	.313	.317	.317	.321	.334
Havre, Mont	27.378	.386	.393	.400	.405	.411	.420	.427	.434	.435	.431	.425	.415	.402	.390	.380	.370	.356	.347	.339	.340	.344	.361	.372	.390
Helena, Mont	25.945	.953	.960	.963	.966	.973	.979	.978	.990	.991	.988	.983	.972	.960	.948	.932	.920	.909	.903	.898	.900	.908	.929	.940	.950
Huron, S. Dak	28.599	.605	.608	.612	.615	.624	.635	.644	.647	.645	.643	.633	.618	.602	.588	.576	.562	.549	.542	.542	.546	.562	.577	.587	.598
Indianapolis, Ind	29.235	.235	.233	.236	.242	.254	.264	.273	.276	.275	.271	.264	.252	.239	.223	.213	.206	.204	.203	.206	.215	.227	.230	.233	.238
Jacksonville, Fla	30.032	.026	.022	.024	.031	.041	.049	.054	.053	.053	.049	.038	.024	.009	.995	.994	.998	.001	.014	.025	.041	.047	.045	.041	.029
Kansas City, Mo	29.045	.046	.045	.042	.038	.054	.068	.079	.088	.090	.092	.087	.077	.067	.056	.042	.031	.021	.019	.019	.020	.031	.039	.042	.052
Key West, Fla	30.082	.070	.062	.059	.053	.070	.082	.092	.098	.102	.105	.102	.093	.080	.064	.052	.051	.054	.066	.079	.087	.093	.096	.091	.079
Knoxville, Tenn	29.040	.038	.036	.040	.048	.058	.068	.079	.081	.082	.079	.068	.054	.037	.027	.014	.008	.007	.013	.019	.028	.041	.043	.044	.044
Little Rock, Ark	29.726	.723	.717	.716	.724	.734	.748	.761	.769	.769	.769	.762	.744	.728	.716	.704	.691	.683	.684	.691	.701	.716	.725	.726	.726
Louisville, Ky	29.483	.480	.483	.485	.495	.506	.517	.529	.534	.533	.529	.520	.504	.490	.471	.457	.453	.449	.451	.453	.466	.475	.480	.482	.489
Lynchburg, Va	29.342	.338	.338	.341	.351	.358	.366	.369	.367	.365	.358	.349	.331	.314	.299	.294	.291	.295	.310	.318	.333	.338	.342	.341	.335
Marquette, Mich	29.175	.172	.170	.173	.178	.187	.192	.195	.198	.198	.199	.199	.196	.192	.187	.183	.175	.171	.173	.173	.177	.178	.177	.181	.183
Memphis, Tenn	29.712	.707	.703	.705	.711	.722	.736	.744	.752	.756	.755	.752	.741	.725	.711	.700	.693	.685	.691	.698	.703	.712	.714	.714	.718
Milwaukee, Wis	29.294	.295	.293	.298	.305	.314	.321	.330	.330	.328	.329	.325	.315	.307	.296	.284	.276	.270	.267	.269	.276	.283	.284	.290	.299
Moorhead, Minn	28.956	.958	.963	.965	.970	.976	.979	.979	.980	.984	.982	.979	.964	.954	.945	.939	.925	.920	.917	.921	.927	.941	.944	.948	.955
Nantucket, Mass	29.995	.992	.990	.992	.998	.002	.007	.010	.009	.007	.005	.001	.996	.992	.986	.981	.979	.984	.987	.994	.003	.002	.001	.997	.996
Nashville, Tenn	29.470	.465	.462	.465	.474	.485	.497	.505	.512	.514	.513	.504	.489	.478	.463	.452	.442	.441	.448	.453	.463	.471	.475	.473	.476
New Haven, Conn	29.869	.866	.864	.870	.875	.880	.885	.885	.884	.880	.874	.868	.857	.851	.844	.837	.834	.838	.846	.853	.870	.874	.874	.871	.865
New Orleans, La	29.993	.988	.984	.983	.989	.998	.009	.019	.029	.030	.030	.025	.014	.004	.993	.985	.979	.972	.971	.974	.984	.995	.002	.003	.998
New York, N. Y	29.812	.809	.807	.809	.815	.820	.824	.831	.828	.827	.825	.819	.811	.803	.792	.782	.780	.783	.789	.797	.811	.814	.815	.814	.809
Norfolk, Va	29.984	.976	.975	.977	.985	.993	.001	.006	.005	.005	.004	.997	.986	.974	.962	.952	.952	.957	.961	.969	.982	.988	.988	.985	.982
Omaha, Neb	28.865	.864	.866	.869	.879	.887	.895	.901	.906	.906	.907	.904	.895	.883	.867	.857	.846	.836	.834	.834	.840	.853	.862	.867	.872
Parkersburg, W. Va.	29.376	.375	.376	.378	.386	.397	.407	.414	.415	.414	.410	.402	.395	.374	.357	.348	.340	.337	.340	.346	.357	.365	.370	.372	.377
Philadelphia, Pa	29.895	.891	.889	.890	.894	.900	.907	.914	.914	.912	.909	.903	.894	.882	.874	.864	.860	.864	.870	.876	.889	.895	.897	.895	.891
Pikes Peak, Colo	18.121	.116	.110	.105	.103	.103	.104	.105	.110	.116	.123	.130	.134	.135	.131	.128	.124	.118	.115	.113	.112	.113	.119	.122	.117
Pittsburg, Pa	29.171	.169	.169	.172	.179	.188	.196	.200	.199	.196	.190	.180	.167	.150	.139	.132	.125	.125	.133	.145	.151	.158	.163	.166	.165
Portland, Oreg	29.907	.913	.920	.925	.929	.933	.935	.940	.949	.956	.958	.956	.950	.943	.930	.917	.904	.891	.879	.870	.867	.873	.881	.897	.918
Rochester, N. Y	29.454	.454	.455	.458	.465	.473	.479	.483	.482	.480	.477	.470	.464	.456	.445	.437	.432	.429	.431	.439	.445	.450	.455	.456	.457
Roseburg, Oreg	29.470	.476	.483	.486	.489	.494	.499	.504	.510	.515	.514	.511	.502	.490	.477	.465	.445	.433	.421	.415	.416	.424	.440	.461	.473
St. Louis, Mo	29.437	.433	.434	.434	.440	.449	.462	.471	.477	.474	.473	.466	.454	.443	.431	.418	.407	.401	.402	.407	.417	.430	.435	.434	.439
St. Paul, Minn	29.086	.090	.092	.095	.102	.109	.122	.130	.136	.135	.134	.127	.118	.106	.094	.083	.073	.063	.054	.054	.060	.073	.078	.083	.096
Salt Lake City, Utah	25.716	.722	.725	.728	.731	.737	.745	.757	.765	.771	.773	.771	.762	.752	.736	.721	.711	.696	.687	.686	.687	.694	.703	.712	.729
San Diego, Cal	29.894	.895	.894	.885	.880	.878	.880	.884	.894	.904	.911	.912	.907	.904	.901	.895	.883	.874	.864	.860	.865	.873	.883	.894	.888
San Francisco, Cal	29.860	.860	.861	.856	.854	.852	.855	.859	.866	.875	.884	.887	.890	.889	.883	.875	.860	.850	.837	.827	.827	.833	.841	.857	.860
Santa Fe, N. Mex	23.456	.458	.459	.457	.456	.456	.460	.466	.470	.479	.479	.475	.469	.459	.447	.435	.421	.413	.407	.408	.411	.425	.441	.452	.448
S'lt Ste. Marie, Mich	29.273	.271	.275	.276	.282	.288	.293	.294	.293	.290	.286	.279	.274	.269	.262	.256	.254	.254	.255	.255	.262	.266	.270	.273	.273
Savannah, Ga	29.977	.969	.963	.965	.973	.983	.992	.000	.001	.006	.002	.995	.982	.970	.959	.952	.949	.955	.963	.972	.981	.987	.986	.982	.978
Seattle, Wash	29.935	.938	.938	.940	.943	.946	.952	.959	.969	.973	.979	.979	.975	.972	.965	.958	.946	.935	.926	.915	.911	.913	.918	.926	.946
Spokane, Wash	28.007	.015	.019	.021	.025	.028	.037	.047	.058	.064	.063	.042	.026	.032	.035	.030	.021	.007	.994	.983	.979	.981	.989	.997	.021
Toledo, Ohio	29.310	.309	.305	.305	.311	.319	.320	.331	.335	.333	.331	.323	.313	.301	.293	.284	.279	.273	.278	.286	.297	.306	.309	.309	.307
Vicksburg, Miss	29.772	.767	.763	.762	.766	.776	.789	.804	.810	.813	.812	.806	.797	.786	.772	.759	.750	.744	.745	.746	.750	.765	.771	.774	.775
Washington, D. C	29.916	.911	.909	.911	.918	.926	.933	.939	.940	.938	.938	.931	.920	.906	.895	.889	.883	.883	.887	.895	.909	.913	.916	.916	.913
Wilmington, N. C	29.988	.981	.979	.984	.993	.002	.015	.019	.022	.023	.018	.012	.001	.992	.982	.978	.974	.980	.988	.994	.005	.006	.001	.996	.997
Yuma, Ariz	29.687	.690	.693	.693	.695	.701	.713	.724	.747	.755	.761	.758	.751	.742	.722	.702	.680	.659	.642	.631	.635	.643	.663	.677	.699

TABLE VII.—*Average wind movement for each hour of seventy-fifth meridian time, July, 1894.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex	6.8	6.7	6.3	6.2	6.8	6.4	6.4	5.1	6.8	8.6	8.8	7.8	7.7	6.9	7.7	8.0	7.8	8.2	9.0	9.6	8.8	7.1	7.3	7.3	7.4
Albany, N. Y	3.7	3.7	3.4	3.6	3.4	3.6	4.6	5.9	6.1	6.7	7.2	7.3	8.6	8.9	9.1	8.1	7.7	7.4	6.2	4.7	4.3	4.5	3.8	4.4	5.7
Alpena, Mich	4.8	5.0	4.8	5.5	5.7	5.2	6.0	7.1	8.4	9.0	9.8	10.1	10.4	10.8	11.4	10.9	10.3	10.1	8.6	7.3	5.5	4.6	4.7	4.6	7.5
Amarillo, Tex	14.8	14.6	14.1	13.7	13.0	13.2	14.9	14.4	16.1	16.4	16.4	15.0	13.5	13.1	13.1	13.3	13.1	13.7	15.7	16.5	15.7	14.2	15.7	16.0	14.6
Atlanta, Ga	5.9	6.3	6.4	6.1	5.9	5.7	5.0	5.6	6.1	6.7	7.2	7.0	7.4	7.8	8.4	9.0	8.8	8.6	7.4	6.5	6.6	6.4	6.3	6.2	6.8
Atlantic City, N. J	8.4	8.1	7.6	7.6	8.0	8.1	8.6	9.4	10.1	10.1	11.4	12.2	12.6	13.6	13.4	13.5	12.8	12.2	10.8	10.5	10.3	9.9	9.5	9.0	10.3
Augusta, Ga	2.7	2.5	2.5	2.1	2.3	2.0	2.6	3.0	4.0	4.5	4.6	5.1	5.8	5.8	6.6	6.8	6.7	6.2	5.4	3.8	3.6	3.2	3.2	2.9	4.1
Baker City, Oreg	3.0	3.0	3.6	4.5	5.2	5.8	6.4	6.9	6.6	5.5	3.8	2.8	3.6	3.8	4.0	5.0	5.4	6.1	6.0	6.7	6.7	6.0	4.6	3.7	4.9
Baltimore, Md	5.6	5.1	4.6	4.6	4.3	4.2	4.8	5.8	6.8	7.1	7.7	8.7	9.5	9.7	9.4	8.8	9.5	8.3	7.1	6.2	5.5	5.3	5.6	5.6	6.7
Bismarck, N. Dak	5.9	6.4	5.6	5.6	4.4	4.7	4.2	5.7	6.7	7.4	9.3	10.6	11.4	12.4	12.8	12.8	12.7	12.6	12.5	11.3	9.1	7.6	6.8	6.3	8.5
Block Island, R. I	13.8	13.6	13.4	12.9	12.3	12.4	13.2	13.5	13.2	13.8	14.6	16.4	18.3	18.3	19.1	19.5	18.2	17.2	16.6	15.6	15.5	15.4	14.7	14.4	15.2
Boston, Mass	8.8	8.7	8.4	8.2	7.9	7.3	7.4	7.6	8.1	8.6	9.0	10.2	11.5	12.9	12.1	11.5	11.3	11.2	9.9	9.1	8.8	9.0	8.8	8.6	9.4
Buffalo, N. Y	6.7	6.5	6.8	7.2	7.8	7.5	8.2	8.6	9.1	10.4	11.3	12.7	13.6	13.2	13.0	12.0	11.8	11.7	10.1	8.5	7.6	7.5	7.3	6.8	9.4
Cairo, Ill	4.8	4.9	4.8	5.3	5.0	4.9	4.5	5.3	5.7	6.0	7.2	7.7	7.5	8.0	8.3	8.6	7.7	7.5	5.9	5.0	4.8	4.5	4.3	4.3	6.1
Cape Henry, Va	9.3	9.5	9.4	9.2	8.7	8.8	9.3	9.5	9.9	9.8	9.4	9.5	10.3	11.0	12.0	12.0	11.5	10.7	10.1	10.2	9.4	9.2	9.2	9.4	9.9
Charleston, S. C	5.3	5.4	5.3	5.2	5.0	4.5	5.3	6.4	7.5	7.5	8.2	9.6	10.8	12.2	11.8	12.1	11.7	10.6	9.2	8.2	7.5	6.9	6.7	6.0	7.9
Charlotte, N. C	4.1	4.0	4.2	3.8	3.9	4.0	3.9	4.5	4.5	5.1	4.9	5.5	6.1	6.3	6.6	6.3	6.0	5.6	6.0	4.9	4.7	4.7	4.7	4.4	5.0
Chattanooga, Tenn	4.8	4.5	3.6	3.3	3.0	3.2	3.2	3.4	4.2	4.3	5.0	5.4	6.3	7.0	6.7	7.2	8.1	7.5	6.9	5.6	4.9	4.6	3.5	3.8	5.0
Cheyenne, Wyo	8.6	8.5	7.5	6.5	6.1	5.6	5.3	5.1	5.0	6.7	8.0	8.8	9.3	10.6	10.5	10.9	11.2	11.0	11.7	10.7	9.9	8.3	8.2	9.0	8.5
Chicago, Ill	14.6	15.5	15.2	14.9	14.7	14.9	14.6	13.6	13.1	13.5	14.6	15.1	15.8	16.7	16.1	15.9	15.9	15.1	15.2	14.5	14.3	14.1	14.1	13.3	14.8
Cincinnati, Ohio	3.9	3.9	3.9	4.3	4.2	3.4	3.9	5.3	6.1	7.2	8.1	8.4	8.7	9.0	9.3	9.5	9.7	9.3	8.4	6.9	5.4	4.5	5.1	4.4	6.4
Cleveland, Ohio	9.8	10.6	10.9	10.0	9.9	9.6	9.8	9.0	9.9	10.8	12.0	11.8	11.8	12.5	11.8	11.0	11.4	9.8	8.5	6.9	7.9	8.7	8.9	9.0	10.2
Colorado Spr'gs, Colo.	6.2	5.6	5.7	6.3	6.1	6.3	7.2	7.2	7.9	8.2	8.1	8.7	9.2	9.7	9.5	9.1	10.3	10.2	9.8	8.2	8.0	6.8	6.5	5.6	7.8
Columbia, Mo	3.6	3.3	3.1	3.3	2.9	2.9	2.8	3.7	4.6	5.7	6.3	6.3	6.5	6.7	6.7	6.7	6.5	6.7	5.8	4.4	3.0	3.4	3.4	3.6	4.7
Columbus, Ohio	4.6	4.9	5.0	4.4	4.3	4.4	4.4	5.7	6.8	8.2	9.6	9.9	10.8	11.6	12.2	11.6	12.0	11.2	10.2	9.5	7.9	6.7	6.0	5.5	7.8
Concordia, Kans	5.5	5.4	5.3	4.5	4.0	4.4	4.5	4.9	6.1	7.6	8.3	8.2	8.5	8.5	8.3	8.1	8.5	8.8	8.6	7.1	5.6	4.8	5.4	5.2	6.5
Corpus Christi, Tex	9.5	8.1	7.5	6.6	6.3	6.1	5.2	5.7	7.7	8.8	9.3	9.4	10.7	13.1	15.5	16.4	16.5	16.4	16.1	15.5	14.7	13.7	12.4	11.1	10.9
Davenport, Iowa	5.4	4.5	4.3	4.8	4.9	4.9	5.0	5.1	5.9	7.0	7.5	8.0	8.9	8.8	9.0	8.7	9.1	8.9	8.4	7.1	5.4	5.2	5.0	5.0	6.5
Denver, Colo	5.6	6.0	5.3	5.8	5.4	5.6	5.0	5.2	4.6	4.9	4.6	4.7	5.3	6.0	6.6	6.7	8.9	9.1	10.0	10.3	8.1	7.1	7.0	6.4	6.5
Des Moines, Iowa	4.6	5.0	4.2	4.0	4.6	4.4	4.2	4.5	6.2	7.5	9.0	9.2	9.7	10.2	10.3	9.9	9.7	9.0	9.0	8.3	7.1	5.8	5.4	4.8	6.9
Detroit, Mich	8.3	8.3	8.3	7.7	7.6	7.8	7.5	7.4	8.0	8.3	9.4	10.7	10.9	11.1	12.2	13.1	12.8	11.6	10.1	8.4	8.3	8.1	7.7	8.3	9.2
Dodge City, Kans	9.9	9.6	10.1	8.9	8.5	8.3	7.6	7.2	10.0	12.9	12.6	11.8	11.6	12.1	12.3	12.5	12.3	12.6	13.4	13.9	13.0	11.7	11.1	9.6	11.0
Duluth, Minn	5.1	5.3	5.4	5.5	5.8	6.0	5.1	4.7	5.5	6.3	7.3	7.9	8.4	9.0	9.1	8.9	8.9	7.8	7.5	6.5	5.3	4.9	5.5	5.5	6.5
Eastport, Me	5.8	5.1	5.0	4.2	4.3	3.9	4.3	5.2	5.1	6.0	6.7	8.2	8.5	9.2	9.5	8.9	8.7	8.6	7.7	6.5	6.2	6.4	6.1	6.4	6.5
El Paso, Tex	5.7	5.7	5.4	5.8	5.7	5.2	4.5	4.7	4.7	5.7	6.5	6.1	6.0	6.0	7.1	7.3	7.6	8.3	9.3	8.3	8.4	9.2	7.0	5.8	6.5
Erie, Pa	8.3	8.1	8.3	8.9	8.9	8.4	8.4	8.3	9.0	9.7	10.4	10.1	10.8	10.9	10.8	10.4	9.8	8.7	7.1	6.4	6.7	6.9	7.7	7.9	8.8
Eureka, Cal	4.0	4.2	4.3	3.8	4.4	3.7	3.4	3.1	3.2	3.5	4.5	4.8	6.4	6.9	7.8	7.9	8.4	8.8	8.5	8.1	7.3	6.2	5.1	4.0	5.5
Fort Canby, Wash	9.5	8.9	8.4	8.0	7.9	8.5	8.7	9.3	9.0	9.5	9.9	9.6	10.7	11.2	12.1	12.0	12.6	11.8	11.6	11.0	11.2	10.8	10.3	10.0	10.1
Fort Smith, Ark	4.6	4.5	4.7	4.4	4.3	4.4	3.7	4.5	4.6	4.4	5.3	5.8	6.2	6.4	6.8	7.4	7.3	7.6	7.2	7.2	6.1	5.3	4.4	4.4	5.5
Fresno, Cal	10.8	11.1	11.1	10.2	9.4	8.4	7.9	6.1	4.9	4.9	4.3	4.1	4.2	4.1	4.3	5.0	5.6	6.3	6.3	6.7	8.0	8.7	9.8	10.5	7.2
Galveston, Tex	10.0	9.9	9.8	9.6	9.1	8.2	7.4	7.7	8.2	8.8	9.2	9.0	9.4	10.5	11.4	12.1	11.6	11.5	10.9	10.2	9.7	9.3	9.5	10.0	9.7
Grand Haven, Mich	6.9	6.5	6.2	6.3	5.8	5.9	6.1	7.1	8.2	9.5	10.8	11.7	12.2	12.7	12.1	11.8	10.9	9.8	8.8	7.3	6.4	6.9	6.8	7.1	8.5
Green Bay, Wis	6.2	5.8	5.6	5.7	5.8	5.7	5.3	6.6	8.0	8.1	8.4	9.4	9.0	9.9	9.8	9.9	9.5	8.9	7.6	7.3	6.5	6.5	6.5	6.0	7.4
Hannibal, Mo	6.2	6.6	6.2	6.0	5.9	5.0	5.0	5.5	6.5	7.2	8.2	8.7	8.7	9.4	9.5	10.0	10.2	9.9	9.3	8.8	6.9	6.0	6.5	6.2	7.4
Harrisburg, Pa	4.5	4.3	4.1	3.6	3.7	3.1	3.5	4.4	5.7	6.6	6.6	7.2	8.1	8.4	8.6	9.1	9.2	8.8	7.7	6.0	5.5	4.8	4.4	4.6	5.9
Hatteras, N. C	10.5	10.5	9.7	10.1	9.6	9.7	10.5	11.1	11.5	11.8	12.1	12.3	12.6	12.7	12.7	12.7	12.4	11.6	11.7	10.7	11.2	10.3	10.2	9.7	11.2
Havre, Mont	4.2	5.2	6.5	5.0	4.1	3.9	4.1	4.5	5.9	7.0	7.5	7.7	7.7	7.7	8.7	9.9	10.1	10.2	10.2	9.5	8.0	7.1	6.2	5.1	6.9
Helena, Mont	8.5	7.4	7.3	7.2	7.7	7.9	6.4	5.9	3.9	4.2	4.5	5.4	6.7	7.4	8.0	8.8	9.0	9.0	9.8	9.2	8.4	8.1	7.8	8.9	7.4
Huron, S. Dak	11.2	10.9	9.9	10.0	9.9	8.8	8.8	9.4	10.3	11.8	12.8	13.4	13.8	14.4	14.6	14.8	14.3	13.6	13.4	13.1	11.8	10.2	11.5	11.2	11.8
Idaho Falls, Idaho	5.8	5.6	5.0	5.3	5.8	6.0	5.0	4.7	4.6	4.4	5.0	5.4	6.9	7.6	7.3	8.1	8.5	8.8	9.9	11.5	10.9	8.9	7.7	6.5	6.9
Indianapolis, Ind	3.6	3.5	3.4	3.4	3.3	3.6	3.5	4.0	4.6	5.3	6.2	6.4	7.1	7.0	7.4	7.1	7.0	7.3	6.2	5.1	4.1	3.8	3.5	3.5	5.0
Jacksonville, Fla	6.6	6.0	6.5	6.1	6.0	6.1	6.1	6.8	7.9	8.4	8.5	8.6	10.3	10.1	10.7	10.9	10.2	10.1	8.9	7.5	6.5	5.7	6.2	6.1	7.8
Jupiter, Fla	5.1	5.0	4.6	4.5	4.5	4.4	4.4	5.6	7.4	8.5	9.2	10.5	10.8	11.6	12.4	11.5	11.0	9.1	6.8	6.2	5.3	5.5	5.7	5.4	7.3
Kansas City, Mo	5.7	5.7	6.2	6.0	6.0	5.9	6.2	6.1	6.6	7.4	7.7	8.6	9.5	9.5	9.5	9.1	8.6	8.2	7.5	6.3	4.6	5.1	5.8	5.7	7.0
Keokuk, Iowa	5.9	5.2	4.9	4.9	4.4	4.5	4.2	4.5	5.7	6.1	6.5	7.0	7.4	7.9	8.0	8.4	8.1	7.5	7.1	6.5	5.3	5.3	6.1	5.7	6.1
Key West, Fla	5.6	5.6	5.4	5.6	5.3	5.4	5.6	6.7	7.3	7.9	8.6	8.4	8.3	8.3	7.5	7.7	7.5	6.7	6.3	5.9	6.1	5.8	5.6	6.1	6.6
Kittyhawk, N. C	11.1	10.1	9.3	9.3	9.9	9.6	10.2	11.4	11.3	11.2	11.2	10.2	10.0	11.0	12.8	13.3	14.3	14.5	13.7	13.0	12.4	11.9	13.1	12.7	11.6
Knoxville, Tenn	2.1	1.8	1.5	1.7	1.5	1.8	2.1	2.6	3.7	4.7	5.2	5.6	6.1	6.1	6.5	6.9	6.4	5.9	5.7	3.8	2.7	2.4	2.2	2.0	3.8
La Crosse, Wis	5.5	5.5	5.3	5.5	5.4	5.2	5.6	5.9	5.9	5.7	6.0	6.2	8.0	9.2	9.5	9.6	9.0	8.4	8.0	6.0	5.3	4.9	5.0	4.4	6.5
Lander, Wyo	4.4	3.8	3.8	3.1	2.9	2.2	2.2	2.2	1.8	2.1	2.4	3.4	4.3	4.5	5.1	6.0	6.2	7.1	6.5	5.5	6.2	5.6	5.5	5.2	4.3
Lexington, Ky	8.4	8.5	8.2	7.1	6.8	7.6	7.1	6.4	6.7	7.1	7.9	8.7	8.9	9.4	10.8	10.3	9.6	9.8	9.1	7.9	8.0	8.1	8.6	8.4	8.3
Little Rock, Ark	3.4	3.1	4.0	3.6	3.6	3.8	4.2	5.2	5.2	5.3	5.6	6.6	6.6	7.3	7.5	7.9	7.6	7.2	7.3	5.7	5.6	3.8	3.5	3.2	5.3
Los Angeles, Cal	2.1	1.7	1.6	1.4	1.4	1.6	1.3	1.5	1.4	1.4	2.2	2.7	3.4	4.5	5.8	6.2	7.1	7.1	7.2	7.0	5.8	4.3	3.5	2.7	3.5
Louisville, Ky	4.5	4.5	4.4	4.2	4.4	4.3	4.5	4.9	5.3	6.1	7.1	7.6	8.1	8.0	8.7	9.0	8.3	8.5	7.3	6.1	5.7	5.4	5.0	4.6	6.1
Lynchburg, Va	1.6	1.4	1.6	1.5	1.5	1.4	1.8	2.8	3.4	4.7	5.1	5.2	5.5	5.8	5.8	6.0	6.2	5.7	5.1	3.8	3.2	2.1	2.0	1.5	3.5
Marquette, Mich	9.9	10.2	9.8	9.8	10.4	10.8	10.2	9.6	10.2	10.3	10.7	10.7	11.0	10.4	10.0	10.1	9.5	7.7	6.4	5.6	5.3	6.5	8.2	9.4	9.3
Memphis, Tenn	4.0	3.6	3.6	3.8	3.5	3.3	3.7	3.6	4.3	4.9	5.6	5.5	6.9	6.9	7.1	7.6	6.7	6.4	5.8	4.3	4.3	4.3	4.1	4.1	4.9
Meridian, Miss	2.8	2.2	2.5	2.6	2.4	2.5	2.5	3.0	4.4	5.0	5.1	5.4	5.9	6.4	6.8	6.9	7.0	6.7	5.9	4.7	3.0	2.6	2.5	2.6	4.2
Miles City, Mont	2.6	3.3	2.9	2.7	2.7	2.6	2.7	2.6	3.4	4.0	5.4	6.0	6.5	6.9	7.5	7.5	6.7	6.6	5.9	6.0	6.4	5.1	4.2	3.5	4.7
Milwaukee, Wis	7.1	7.1	7.4	7.4	7.6	7.4	6.9	7.5	8.5	9.1	9.8	10.2	11.5	11.7	12.1	11.6	11.0	10.5	9.3	7.8	6.2	5.6	6.0	6.5	8.6
Mobile, Ala	4.1	3.7	3.8	4.0	3.5	3.8	4.2	4.3	5.2	5.5	5.9	6.5	7.9	9.3	9.6	10.1	9.7	9.3	7.6	6.6	5.7	5.3	4.7	4.0	6.0
Montgomery, Ala	3.9	4.3	4.1	3.5	3.2	3.2	3.2	4.4	5.4	5.7	6.1	6.1	6.0	6.8	6.8	6.6	6.8	7.1	6.6	6.2	4.9	4.6	4.6	4.3	5.2
Moorhead, Minn	8.3	8.7	8.7	7.9	7.7	7.6	6.9	7.2	7.7	7.9	8.6	8.9	9.5	10.2	10.0	10.1	10.2	9.8	8.5	7.6	7.9	8.0	8.8	8.4	8.6
Nantucket, Mass	8.3	8.4	8.0	7.9	7.9	7.9	8.1	9.0	10.1	10.3	10.5	11.0	11.3	11.7	12.2	11.9	11.2	10.0	9.4	8.3	8.2	8.4	8.5	8.3	9.4
Nashville, Tenn	2.3	2.1	2.2	2.3	2.5	2.2	2.3	2.9	3.8	3.9	5.1	5.6	5.9	6.2	6.4	6.6	6.4	6.3	5.6	4.3	3.9	2.9	2.8	2.4	4.0
New Haven, Conn	4.3	4.9	4.2	4.1	3.9	4.0	4.4	5.1	5.6	7.2	7.9	9.2	10.5	11.7	11.4	11.2	10.7	8.8	7.6	7.1	5.8	5.7	5.3	4.5	6.9
New London, Conn	3.9	3.9	3.7	3.7	3.9	3.8	4.1	5.3	6.0	6.8	8.4	9.0	9.6	10.4	9.7	9.8	9.3	7.5	6.0	5.5	4.5	4.5	4.1	3.9	6.1
New Orleans, La	4.1	4.1	4.3	4.0	4.4	4.0	3.7	4.6	6.3	6.4	6.7	7.1	8.2	7.7	8.2	8.4	7.4	6.6	6.6	5.3	4.3	4.8	4.6	4.7	5.7
New York, N. Y	8.1	7.6	7.6	7.1	7.1	7.5	7.5	7.3	7.4	8.4	8.4	8.8	9.2	10.4	10.8	10.9	10.0	10.1	8.8	8.6	9.2	8.5	7.5	8.0	8.5
Norfolk, Va	7.8	7.3	6.7	6.8	6.8	6.1	6.6	7.3	8.1	8.3	8.1	7.9	8.1	8.5	9.8	9.8	10.8	11.0	9.9	9.1	8.0	7.9	8.3	8.3	8.2
Northfield, Vt	5.8	5.3	4.6	4.6	4.1	4.6	3.9	5.2	7.3	8.6	9.1	9.9	10.3	9.8	10.5	11.1	10.3	7.3	5.7	5.6	5.9	6.4	6.2	6.1	7.0
North Platte, Nebr	8.6	8.9	8.8	7.7	7.1	6.5	6.1	6.1	6.8	8.4	9.7	10.2	10.0	10.3	10.7	9.8	9.5	9.3	9.3	9.0	8.8	8.3	8.4	9.1	8.6
Oklahoma, Okla	6.6	6.4	5.9	5.6	5.3	5.1	4.9	5.1	6.5	7.2	7.7	8.0	7.9	8.4	8.2	8.0	7.7	7.9	8.3	7.9	7.2	6.6	6.4	6.3	6.9
Omaha, Nebr	6.0	6.1	5.6	5.1	4.8	4.6	5.1	5.6	7.0	7.4	8.5	9.1	9.5	9.6	10.1	9.9	9.8	9.5	8.9	7.6	6.2	6.1	6.0	6.0	7.2
Oswego, N. Y	7.6	7.6	8.1	8.0	7.8	7.7	8.3	9.2	9.3	9.2	9.1	9.4	9.4	9.3	9.3	8.6	8.2	7.0	5.8	5.7	5.7	6.4	6.5	7.0	7.9

TABLE VII.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Palestine, Tex	4.5	4.4	3.7	3.6	3.1	3.1	2.9	3.6	5.0	5.7	5.9	6.1	6.2	6.0	6.3	6.4	6.5	6.9	6.5	5.1	4.4	4.4	4.1	4.1	4.9
Parkersburg, W. Va	3.1	2.8	2.5	2.4	2.6	2.6	2.8	3.1	3.7	4.2	5.2	5.5	6.8	7.1	7.3	7.5	7.0	6.1	4.9	4.3	3.8	3.5	3.2	2.9	4.4
Pensacola, Fla	5.9	6.4	5.8	6.0	6.4	6.0	5.6	6.7	6.9	7.0	7.8	8.5	9.1	11.5	12.6	13.0	13.8	13.0	10.1	9.4	8.0	7.3	6.7	6.2	8.3
Philadelphia, Pa	7.6	7.3	7.5	7.5	7.0	7.2	8.0	8.3	8.9	9.0	9.6	10.0	10.5	11.4	12.4	12.4	12.5	12.1	10.5	9.3	8.7	8.0	8.0	8.2	9.3
Pierre, S. Dak	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pikes Peak, Colo	14.7	16.1	16.1	16.4	17.1	17.3	16.5	16.0	14.5	13.0	12.3	10.8	10.0	10.4	11.0	11.4	11.8	13.4	14.0	13.4	14.0	15.1	15.8	16.2	14.1
Pittsburg, Pa	3.7	3.3	3.3	3.5	3.4	3.3	3.4	4.1	4.5	6.0	7.0	6.9	7.9	8.2	8.4	8.4	7.6	7.8	7.1	6.0	5.1	5.0	4.2	4.1	5.5
Port Angeles, Wash	5.0	5.5	5.1	4.9	4.4	4.2	4.2	4.6	4.2	4.0	5.5	6.2	6.5	7.2	7.7	8.3	9.5	10.2	10.3	10.7	10.5	8.6	6.6	5.3	6.6
Port Huron, Mich	7.4	8.0	7.5	7.5	7.9	7.8	7.2	7.0	8.4	9.7	11.2	11.1	11.6	11.9	12.1	11.8	11.9	10.8	9.8	9.0	8.1	7.7	7.7	7.3	9.2
Portland, Me	3.4	3.7	3.8	3.3	3.6	4.2	3.9	4.6	5.2	6.1	7.2	8.2	8.6	8.5	9.2	9.4	8.7	7.6	6.7	5.8	5.5	5.2	4.5	4.1	5.9
Portland, Oreg	10.4	9.3	7.7	7.0	6.6	6.6	6.4	6.4	6.2	7.5	8.8	8.6	8.3	8.6	8.8	8.7	8.6	8.6	9.1	9.5	10.8	10.3	9.7	9.8	8.4
Pueblo, Colo	6.1	5.5	5.2	5.7	5.3	4.6	4.7	4.6	5.2	6.0	6.9	6.9	7.4	8.0	8.7	10.1	10.1	10.6	10.3	9.1	8.6	7.4	7.8	6.6	7.1
Raleigh, N. C	3.9	3.5	3.2	3.3	3.3	3.1	3.7	4.4	4.3	4.6	4.7	5.2	5.2	5.2	5.1	5.7	5.6	4.9	4.3	3.2	3.5	3.5	4.2	4.1	4.2
Rapid City, S. Dak	8.0	8.5	8.1	6.8	8.0	7.2	6.5	6.5	6.3	6.1	7.3	8.8	10.0	10.3	9.7	9.9	9.8	10.1	9.5	9.8	8.1	6.6	7.9	8.8	8.3
Red Bluff, Cal	4.4	4.4	4.8	4.5	4.4	4.2	3.3	3.5	3.4	3.8	5.2	5.5	5.4	5.5	5.4	5.6	5.9	6.4	6.0	6.5	6.3	6.2	6.1	5.3	5.1
Rochester, N. Y	5.7	5.3	5.9	5.8	6.4	6.2	6.3	7.3	7.9	8.0	8.3	9.4	11.1	10.2	10.2	9.7	9.1	7.8	7.1	5.9	5.1	5.0	5.1	5.2	7.3
Roseburg, Oreg	1.8	1.3	1.1	1.0	1.0	1.0	0.8	0.7	0.9	1.7	2.1	2.4	3.4	3.6	3.9	5.4	6.1	6.8	7.7	8.0	8.6	8.3	5.9	3.4	3.6
Sacramento, Cal	9.5	9.1	10.1	10.0	9.9	9.0	8.9	8.4	7.7	7.6	7.0	6.8	6.3	6.5	6.6	7.0	7.9	8.4	9.2	10.1	11.0	10 8	11.1	10.0	8.7
St. Louis, Mo	8.1	8.2	8.1	7.6	7.0	6.5	6.4	7.4	8.0	8.6	8.7	9.4	10.1	11.2	10.9	11.7	11.0	10.5	10.2	9.3	8.8	8.9	8.1	8.5	8.9
St. Paul, Minn	6.0	5.5	5.5	5.5	5.2	5.3	5.5	5.7	6.0	7.1	8.3	9.6	10.3	10.2	10.4	10.1	9.6	9.8	9.5	7.8	5.9	5.2	5.5	6.0	7.3
St. Vincent, Minn	5.4	5.7	5.8	5.6	5.9	5.5	5.5	6.0	6.5	7.8	8.8	8.7	9.2	9.6	9.6	10.5	10.7	9.9	9.1	7.4	5.6	5.4	4.9	5.6	7.3
Salt Lake City, Utah	4.3	4.3	4.7	3.8	3.4	3.7	3.7	3.7	3.4	3.1	3.6	5.0	6.2	6.8	7.5	7.9	8.6	8.1	8.5	8.3	7.3	6.5	6.7	5.2	5.6
San Antonio, Tex	6.5	5.4	4.8	3.5	3.0	2.6	2.4	2.5	3.5	4.4	4.9	5.3	5.7	5.9	6.3	6.7	7.7	8.5	8.7	9.0	8.2	7.7	7.9	7.5	5.8
San Diego, Cal	2.4	2.0	2.2	2.0	2.0	2.4	2.3	2.9	2.5	3.0	3.7	5.4	7.3	8.3	9.4	9.5	9.8	9.5	8.7	8.0	7.2	6.4	5.1	3.5	5.2
Sandusky, Ohio	7.8	7.4	7.3	6.9	6.9	6.4	6.6	6.4	6.5	7.7	7.7	7.6	8.3	8.9	8.5	8.5	8.3	7.5	7.2	6.8	6.5	6.9	7.3	7.3	7.4
San Francisco, Cal	14.2	12.1	11.3	10.6	10.5	9.5	8.3	8.4	8.2	8.7	9.1	9.5	10.1	13.0	16.2	19.6	22.6	23.8	25.1	25.5	24.8	22.6	20.5	17.5	15.1
Santa Fe, N. Mex	7.2	6.7	5.8	5.1	4.7	4.2	3.9	3.5	3.6	4.3	5.2	5.5	6.2	6.8	8.1	9.3	10.0	10.5	10.4	10.0	8.5	8.0	7.5	6.6	6.7
Sault Ste. Marie, Mich.	3.5	3.7	3.2	3.9	4.0	3.9	4.3	5.0	5.4	6.5	8.1	9.0	10.6	11.0	10.9	10.5	10.7	9.3	8.0	6.4	5.2	4.6	4.0	3.3	6.5
Savannah, Ga	4.6	4.6	4.6	4.6	5.0	5.1	5.3	6.2	7.0	7.6	8.5	8.5	9.1	11.0	11.5	11.2	10.5	9.6	8.4	7.4	6.3	5.7	4.6	5.0	7.2
Seattle, Wash	2.5	2.5	2.3	2.6	2.4	2.3	2.6	2.5	2.7	3.4	4.0	4.2	5.1	6.2	6.0	6.5	6.8	6.8	7.0	7.4	7.3	6.3	5.6	4.0	4.5
Shreveport, La	4.7	4.5	4.1	3.6	3.9	3.6	4.0	3.2	4.2	4.5	5.1	5.5	6.0	7.0	6.7	7.0	7.5	6.7	6.1	5.3	4.2	4.5	4.7	4.8	5.1
Sioux City, Iowa	7.3	7.5	7.5	8.1	8.1	8.2	6.9	6.3	7.7	9.7	10.7	11.4	11.9	12.7	13.4	15.4	13.6	13.3	11.4	10.6	9.3	8.8	8.5	7.6	9.7
Southport, N. C	10.5	9.9	9.6	9.6	8.5	8.3	7.9	8.5	8.9	9.8	10.5	10.9	12.2	13.2	13.8	14.2	14.8	14.8	13.7	12.5	11.5	10.7	11.0	10.3	11.1
Spokane, Wash	4.3	3.7	4.2	3.7	3.6	3.9	4.1	4.2	4.5	5.0	6.1	6.1	7.1	7.3	7.2	7.6	7.5	7.6	7.8	7.5	7.4	6.2	5.2	4.6	5.7
Springfield, Ill	5.8	5.6	5.3	5.3	5.2	4.9	4.9	5.2	5.8	6.5	6.9	7.0	7.5	8.3	8.1	7.7	8.1	7.6	7.3	6.4	6.0	5.5	6.3	6.3	6.4
Springfield, Mo	7.2	7.0	7.0	7.8	7.1	7.3	6.6	6.5	6.9	7.4	8.3	8.9	9.2	8.1	7.8	8.5	8.8	8.5	8.6	7.4	7.1	7.0	7.8	7.5	7.7
Tampa, Fla	3.8	3.6	3.5	3.6	3.6	3.6	4.2	4.8	5.8	6.4	6.7	7.0	7.6	8.7	8.5	8.0	8.3	7.1	6.1	4.5	4.3	3.8	3.3	3.7	5.4
Tatoosh Island, Wash	7.4	7.9	7.9	8.3	8.0	8.7	8.1	8.5	9.5	8.9	8.7	9.7	9.7	11.0	10.8	10.3	10.2	10.1	10.0	9.8	9.2	8.6	8.2	8.0	9.1
Titusville, Fla	8.0	7.0	6.9	7.2	7.0	6.6	7.1	7.8	9.4	9.6	10.4	11.2	13.4	14.0	15.1	15.5	15.3	14.2	11.4	9.7	7.7	8.1	6.9	7.6	9.9
Toledo, Ohio	7.5	7.7	7.4	7.8	7.8	7.5	7.4	7.8	7.9	8.6	9.2	9.9	10.6	11.1	11.6	12.6	12.1	11.5	10.4	8.4	7.5	7.6	8.8	8.5	9.0
Tucson, Ariz	4.8	3.9	4.1	4.5	3.5	3.6	3.1	3.2	3.7	3.5	3.2	3.4	4.1	4.3	4.9	5.4	6.5	7.0	7.4	8.0	6.9	5.6	6.5	6.0	4.9
Valentine, Nebr	8.6	8.0	7.9	7.4	6.7	6.2	0.8	6.5	6.7	8.0	10.7	11.2	11.4	10.5	10.5	11.2	12.1	12.3	11.8	12.0	12.0	11.4	10.1	9.3	9.6
Vicksburg, Miss	5.2	4.9	4.6	4.5	4.7	4.5	4.5	4.6	4.9	5.2	5.0	5.6	5.7	6.4	6.8	6.9	7.1	6.4	5.9	4.5	3.7	4.4	4.5	5.0	5.2
Vineyard Haven, Mass	7.7	7.7	7.8	7.6	7.2	7.6	8.0	8.7	9.1	9.3	9.4	9.8	10.6	11.8	11.9	11.5	11.2	10.5	9.3	9.2	8.5	8.5	8.7	8.2	9.2
Walla Walla, Wash	5.9	5.8	5.4	4.7	4.7	4.7	4.6	4.5	4.3	4.5	5.6	6.1	6.3	6.0	6.1	6.2	6.0	6.3	6.1	6.0	5.4	4.9	5.0	5.9	5.5
Washington, D. C	3.8	3.6	3.2	3.2	3.5	3.3	3.5	4.7	5.0	6.1	6.9	7.5	8.2	8.3	8.4	8.5	7.6	7.4	6.5	4.8	4.1	3.7	3.8	3.4	5.4
Wichita, Kans	6.3	5.9	5.9	5.9	6.2	6.4	5.8	5.9	6.5	6.7	7.4	7.9	7.9	8.0	8.2	7.8	7.6	7.6	6.6	5.7	5.6	5.8	6.0	5.9	6.7
Williston, N. Dak	6.3	5.7	6.0	5.9	4.6	4.9	3.8	4.2	5.4	6.2	7.8	9.2	10.9	12.3	12.4	11.8	11.8	10.8	10.2	10.5	8.2	6.6	6.0	5.4	7.8
Wilmington, N. C	5.7	5.8	5.3	5.3	4.8	4.2	4.7	5.6	6.5	7.0	7.3	8.6	9.6	11.2	12.1	11.4	11.3	10.0	8.4	6.4	6.3	6.6	5.5	5.5	7.3
Winnemucca, Nev	7.5	7.7	8.2	8.4	8.5	8.0	8.3	8.5	7.3	7.6	8.2	8.5	8.7	9.3	9.5	10.1	10.7	11.6	11.8	11.9	10.5	10.8	8.9	7.5	9.1
Woods Holl, Mass	12.2	12.3	11.9	11.4	11.1	10.8	11.3	11.9	11.6	11.8	12.5	12.6	14.1	16.4	16.5	16.5	16.3	16.4	15.5	15.1	14.2	14.1	13.5	12.5	13.4
Yuma, Ariz	6.0	5.7	4.6	4.0	3.8	4.7	5.6	5.2	4.8	7.0	8.4	7.9	7.9	7.7	7.5	7.8	8.7	8.4	9.0	10.7	11.6	9.4	7.5	6.7	7.1

TABLE VIII.—*Prevailing and resultant winds from self-registers for July*, 1894.

Number.	Station.	Prevailing wind.		Total movement.		Resultant direction.			Resultant movement.		Azimuth of movement minus direction.	Ratio of resultant movement to total movement.
		Direction from.	Duration.	Monthly.	Hourly average.	Direction from.	Duration.	Average hourly velocity.	Direction from.	Amount.		
	(1)	(2)	(3) Hours.	(4) Miles.	(5) Miles.	(6)	(7) Hours.	(8) Miles.	(9)	(10) Miles.	(11) °	(12)
1	Eastport, Me	sw.	248	4,845	6.5	s. 36 w.	351	7.0	s. 33 w.	2,442	− 3	0.504
2	Portland, Me	s.	166	4,370	5.9	s. 30 w.	230	7.6	s. 20 w.	1,748	− 10	0.400
4	Boston, Mass	sw.	238	6,974	9.4	s. 51 w.	255	11.6	s. 53 w.	2,945	+ 2	0.422
5	Nantucket, Mass	w.	309	7,026	9.4	s. 81 w.	429	8.5	s. 80 w.	3,648	− 1	0.519
8	New Haven, Conn	sw.	245	5,116	6.9	s. 47 w.	274	7.7	s. 34 w.	2,100	− 13	0.410
10	Albany, N. Y	s.	242	4,250	5.7	s. 27 w.	167	5.9	s. 35 w.	977	+ 8	0.230
11	New York, N. Y	sw.	284	6,345	8.5	s. 40 w.	334	8.4	s. 42 w.	2,800	+ 2	0.441
13	Philadelphia, Pa	sw.	283	6,889	9.3	s. 62 w.	289	9.6	s. 62 w.	2,760	0	0.401
15	Baltimore, Md	sw.	188	4,960	6.7	s. 47 w.	216	6.0	s. 58 w.	1,299	+ 11	0.262
16	Washington, D. C	s.	261	4,004	5.4	s. 20 w.	241	4.1	s. 34 w.	984	+ 14	0.246
17	Lynchburg, Va	sw.	132	2,621	3.5	s. 52 w.	128	3.7	s. 57 w.	479	+ 5	0.183
18	Norfolk, Va	sw.	273	6,106	8.2	s. 20 w.	259	13.7	s. 20 w.	3,544	0	0.580
24	Wilmington, N. C	sw.	289	5,428	7.3	s. 17 w.	421	6.5	s. 17 w.	2,740	0	0.505
26	Augusta, Ga	s.	129	3,040	4.1	s. 18 e.	142	4.3	s. 20 e.	610	+ 2	0.201
27	Savannah, Ga	sw.	182	5,325	7.2	s. 16 w.	237	6.3	s. 2 w.	1,485	− 14	0.279
28	Jacksonville, Fla	sw.	184	5,813	7.8	s. 9 e.	314	9.1	s. 1 w.	2,871	+ 10	0.494
30	Key West, Fla	se.	286	4,926	6.6	s. 54 e.	466	6.6	s. 56 e.	3,064	+ 2	0.622
33	Atlanta, Ga	e.	134	5,060	6.8	s. 64 e.	96	4.8	s. 82 e.	456	+ 18	0.090
38	Vicksburg, Miss	se.	137	3,887	5.2	s. 63 e.	7	28.3	s. 12 w.	198	+ 75	0.051
39	New Orleans, La	s.	121	4,230	5.7	s. 58 e.	30	13.9	n. 36 e.	418	− 86	0.099
42	Little Rock, Ark	e.	134	3,935	5.3	n. 84 e.	53	13.3	n. 65 e.	705	− 19	0.179
44	Galveston, Tex	s.	210	7,222	9.7	s. 3 e.	360	9.4	s. 2 e.	3,435	− 1	0.476
48	Knoxville, Tenn	ne.	159	2,823	3.8	n. 15 e.	157	4.2	n. 5 e.	654	− 10	0.232
49	Memphis, Tenn	nw.	144	3,655	4.9	n. 30 w.	53	6.2	n. 12 e.	328	+ 42	0.090
50	Nashville, Tenn	se.	143	2,999	4.0	s. 85 e.	42	5.1	n. 28 e.	215	− 67	0.072
52	Louisville, Ky	s.	182	4,537	6.1	s. 24 w.	98	4.0	s. 68 w.	389	+ 44	0.086
53	Indianapolis, Ind	sw.	191	3,714	5.0	n. 89 w.	235	5.0	n. 87 w.	1,166	+ 2	0.314
54	Cincinnati, Ohio	nw.	151	4,729	6.4	s. 64 w.	126	11.4	n. 82 w.	1,438	+ 34	0.304
55	Columbus, Ohio	sw.	123	5,817	7.8	s. 77 w.	103	17.2	s. 88 w.	1,770	+ 11	0.304
56	Pittsburg, Pa	nw.	175	4,093	5.5	n. 60 w.	180	6.8	n. 77 w.	1,232	− 17	0.301
58	Buffalo, N. Y	w.	237	7,023	9.4	s. 72 w.	368	12.0	s. 77 w.	4,400	+ 5	0.627
60	Rochester, N. Y	sw.	305	5,398	7.3	s. 57 w.	256	9.5	s. 64 w.	2,440	+ 7	0.452
62	Cleveland, Ohio	se.	174	7,570	10.2	s. 36 w.	114	12.8	s. 62 w.	1,462	+ 26	0.193
64	Toledo, Ohio	w.	171	6,730	9.0	n. 78 w.	227	10.3	n. 80 w.	2,335	− 2	0.347
65	Detroit, Mich	sw.	235	6,877	9.2	s. 84 w.	178	13.4	s. 79 w.	2,379	− 5	0.346
66	Alpena, Mich	se.	192	5,594	7.5	s. 75 w.	52	19.7	n. 75 w.	1,022	+ 30	0.183
67	Grand Haven, Mich	sw.	218	6,322	8.5	n. 78 w.	133	23.1	s. 78 w	3,066	− 24	0.485
68	Marquette, Mich	nw.	164	6,899	9.3	n. 45 w.	238	10.4	n. 88 w.	2,464	− 43	0.357
70	Sault Ste. Marie, Mich	nw.	272	2,803	3.8	n. 70 w.	191	10.6	n. 65 w.	2,028	+ 5	0.724
71	Chicago, Ill	ne.	181	11,030	14.8	s. 30 e.	52	20.8	s. 25 w.	1,082	+ 55	0.098
72	Milwaukee, Wis	se.	122	6,369	8.6	s. 33 w.	39	23.0	s. 63 w.	898	+ 30	0.141
74	Duluth, Minn	nw.	190	4,866	6.5	n. 2 e.	212	9.5	n. 27 w.	2,056	− 29	0.423
75	Moorhead, Minn	s.	250	6,367	8.6	s. 54 w.	361	3.4	s. 50 w.	1,222	− 4	0.192
77	Bismarck, N. Dak	nw.	184	6,346	8.5	n. 47 w.	69	18.3	n. 36 w.	1,265	+ 11	0.199
79	Saint Paul, Minn	se.	185	5,438	7.3	s. 28 w.	204	8.2	s. 49 w.	1,680	+ 11	0.309
81	Davenport, Iowa	sw.	256	4,858	6.5	s. 49 w.	204	6.5	s. 60 w.	1,322	+ 11	0.272
82	Des Moines, Iowa	sw.	178	5,160	6.9	s. 43 w.	93	11.6	s. 11 w.	108	− 32	0.021
88	Saint Louis, Mo	s.	555	6,609	8.9	s. 13 w.	65	12.6	s. 38 w.	820	+ 25	0.124
90	Kansas City, Mo	se.	230	5,197	7.0	s. 73 e.	283	6.6	s. 65 e.	1,879	− 8	0.362
92	Omaha, Nebr	se.	194	5,393	7.2	s. 52 e.	134	11.6	s. 40 e.	1,557	− 12	0.289
96	Huron, S. Dak	se.	261	8,797	11.8	s. 2 w.	91	23.7	s. 13 e.	2,154	− 15	0.245
98	Havre, Mont	nw.	187	5,152	6.9	n. 73 w.	274	8.6	n. 78 w.	2,375	− 5	0.461
100	Helena, Mont	sw.	272	5,498	7.4	s. 79 w.	306	9.4	s. 70 w.	2,868	− 9	0.522
106	Colorado Springs, Colo	n.	351	5,782	7.8	n. 1 e.	204	9.6	n. 1 w.	2,010	− 2	0.348
107	Denver, Colo	s.	174	4,802	6.5	s. 79 w.	159	6.7	s. 86 w.	1,071	+ 7	0.223
108	Pikes Peak, Colo	ne.	159	10,454	14.1	n. 8 w.	95	30.7	n. 80 w.	2,916	− 72	0.279
111	Dodge City, Kans	se.	286	8,192	11.0	s. 41 e.	379	13.5	s. 34 e.	5,099	+ 7	0.622
114	Abilene, Tex	se.	269	5,491	7.4	s. 39 e.	305	8.0	s. 39 e.	2,444	0	0.445
116	El Paso, Tex	se.	263	4,834	6.5	s. 77 e.	358	5.2	s. 86 e.	1,872	− 9	0.387
117	Santa Fe, N. Mex	se.	206	5,017	6.7	s. 50 e.	188	9.1	s. 38 e.	1,710	+ 12	0.341
119	Yuma, Ariz	sw.	268	5,295	7.1	s. 5 w.	304	9.7	s. 15 w.	2,951	+ 10	0.557
122	Salt Lake City, Utah	se.	164	4,167	5.6	s. 67 e.	112	1.6	n. 8 w.	174	−121	0.042
125	Spokane, Wash	sw.	191	4,231	5.7	s. 16 e.	189	10.1	s. 10 w.	1,916	+ 26	0.453
130	Seattle, Wash	nw.	172	3,373	4.5	n. 63 w.	203	4.8	n. 70 w.	979	− 7	0.290
132	Portland, Oregon	nw.	418	6,278	8.4	n. 37 w.	514	8.7	n. 38 w.	4,448	− 1	0.709
133	Roseburg, Oregon	nw.	238	2,714	3.6	n. 31 w.	361	5.6	n. 26 w.	2,010	+ 5	0.742
137	San Francisco, Cal	sw.	668	11,211	15.1	s. 40 w.	699	15.6	s. 44 w.	10,925	+ 4	0.974
140	San Diego, Cal	w.	264	3,889	5.2	n. 78 w.	512	6.0	n. 82 w.	3,081	− 4	0.792

TABLE IX.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during July, 1894.*

Number.	Station.	Component direction from—				Resultant.	
		N.	S.	E.	W.	Direction from—	Duration.
	New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
1	Eastport, Me	12	35	7	23	S. 35 W.	28
2	Portland, Me	12	27	15	20	S. 18 W.	16
3	Northfield, Vt	15	36	9	14	S. 13 W.	22
4	Boston, Mass	11	20	15	33	S. 63 W.	20
5	Nantucket, Mass	8	14	6	43	S. 81 W.	38
6	Woods Holl, Mass	2	16	3	18	S. 47 W.	20
7	Block Island, R. I	11	28	9	36	S. 57 W.	32
8	New Haven, Conn	17	25	11	26	S. 02 W.	17
9	New London, Conn	9	33	5	33	S. 49 W.	37
	Middle Atlantic States.						
10	Albany, N. Y	14	30	8	17	S. 29 W.	18
11	New York, N. Y	14	29	9	27	S. 50 W.	23
12	Harrisburg, Pa	11	18	16	25	S. 52 W.	11
13	Philadelphia, Pa	14	23	13	28	S. 59 W.	18
14	Atlantic City, N. J	7	33	10	29	S. 36 W.	32
15	Baltimore, Md	14	21	14	26	S. 63 W.	16
16	Washington, D. C	14	35	11	12	S. 3 W.	21
17	Lynchburg, Va	14	22	17	26	S. 48 W.	12
18	Norfolk, Va	4	36	15	22	S. 12 W.	33
	South Atlantic States.						
19	Charlotte, N. C	9	33	18	21	S. 7 W.	24
20	Hatteras, N. C	7	30	14	28	S. 31 W.	27
21	Kittyhawk, N. C	8	26	16	29	S. 36 W.	22
22	Raleigh, N. C	11	34	12	19	S. 17 W.	24
23	Southport, N. C	8	25	16	27	S. 33 W.	20
24	Wilmington, N. C	6	32	17	23	S. 13 W.	27
25	Charleston, S. C	9	33	16	21	S. 12 W.	24
26	Augusta, Ga	11	27	23	13	S. 32 E.	19
27	Savannah, Ga	13	27	14	23	S. 33 W.	17
28	Jacksonville, Fla	10	33	22	15	S. 17 E.	24
	Florida Peninsula.						
29	Jupiter, Fla	6	37	15	17	S. 4 W.	31
30	Key West, Fla	6	25	40	7	S. 60 E.	38
31	Tampa, Fla	14	19	21	23	S. 22 W.	5
32	Titusville, Fla	7	31	17	20	S. 7 W.	24
	Eastern Gulf States.						
33	Atlanta, Ga	16	16	28	18	.. .. E.	10
34	Pensacola, Fla	22	16	18	27	N. 56 W.	11
35	Mobile, Ala	26	15	12	18	N. 29 W.	12
36	Montgomery, Ala	18	18	23	18	.. .. E.	5
37	Meridian, Miss	18	22	18	23	S. 51 W.	6
38	Vicksburg, Miss	19	21	19	18	S. 27 E.	2
39	New Orleans, La	15	24	16	18	S. 13 W.	9
	Western Gulf States.						
40	Shreveport, La	11	28	19	17	S. 7 E.	17
41	Fort Smith, Ark	9	16	40	5	S. 79 E.	36
42	Little Rock, Ark	17	22	19	19	S.	5
43	Corpus Christi, Tex	8	30	38	3	S. 58 E.	41
44	Galveston, Tex	8	37	14	16	S. 4 W.	29
45	Palestine, Tex	14	24	25	13	S. 50 E.	16
46	San Antonio, Tex	8	30	36	5	S. 55 E.	38
	Ohio Valley and Tennessee.						
47	Chattanooga, Tenn	18	20	18	20	S. 45 W.	3
48	Knoxville, Tenn	21	7	22	25	N. 12 W.	14
49	Memphis, Tenn	16	20	18	20	S. 27 W.	4
50	Nashville, Tenn	18	19	24	15	S. 84 E.	9
51	Lexington, Ky	15	27	10	28	S. 56 W.	22
52	Louisville, Ky	21	28	10	14	S. 30 W.	8
53	Indianapolis, Ind	21	20	21	21	N.	1
54	Cincinnati, Ohio	18	19	16	23	S. 82 W.	7
55	Columbus, Ohio	18	23	16	20	S. 29 W.	6
56	Pittsburg, Pa	22	17	11	23	N. 67 W.	13
57	Parkersburg, W. Va	11	26	23	17	S. 22 E.	16
	Lower Lake Region.						
58	Buffalo, N. Y	9	22	9	36	S. 64 W.	30
59	Oswego, N. Y	14	23	10	28	S. 63 W.	20
60	Rochester, N. Y	14	24	15	28	S. 52 W.	16
61	Erie, Pa	13	24	9	29	S. 61 W.	23
62	Cleveland, Ohio	14	27	19	15	S. 17 E.	14
63	Sandusky, Ohio	12	19	20	27	S. 45 W.	10
64	Toledo, Ohio	17	12	14	29	N. 72 W.	16
65	Detroit, Mich	17	19	18	25	S. 74 W.	7
	Upper Lake Region.						
66	Alpena, Mich	17	21	16	24	S. 63 W.	9
67	Grand Haven, Mich	20	21	15	23	S. 83 W.	8
68	Marquette, Mich	27	13	11	25	N. 45 W.	20
69	Port Huron, Mich	21	20	18	18	N.	1
70	Sault Ste. Marie, Mich	18	16	17	29	N. 81 W.	12
71	Chicago, Ill	16	21	23	20	S. 31 E.	6
72	Milwaukee, Wis	17	17	15	25	.. .. W.	10
73	Green Bay, Wis	13	34	10	15	S. 13 W.	22
74	Duluth, Minn	25	6	22	22	N.	19
	North Dakota.						
75	Moorhead, Minn	20	22	6	21	S. 82 W.	15
76	Saint Vincent, Minn	20	24	12	18	S. 56 W.	7
77	Bismarck, N. Dak	27	19	11	18	N. 41 W.	11
78	Williston, N. Dak	14	25	13	24	S. 45 W.	16
	Upper Mississippi Valley.						
79	Saint Paul, Minn	13	25	19	25	S. 27 W.	13
80	La Crosse, Wis	16	33	5	18	S. 38 W.	22
81	Davenport, Iowa	15	26	13	25	S. 47 W.	16
82	Des Moines, Iowa	20	22	18	22	S. 63 W.	4
84	Keokuk, Iowa	18	27	20	19	S. 6 E.	9
85	Cairo, Ill	22	23	15	10	S. 79 E.	5
86	Springfield, Ill	22	19	15	20	N. 59 W.	6
87	Hannibal, Mo	19	22	14	22	S. 69 W.	8
88	Saint Louis, Mo	19	27	12	16	S. 27 W.	9
	Missouri Valley.						
89	Columbia, Mo	6	13	8	10	S. 16 W.	7
90	Kansas City, Mo	17	30	26	4	S. 60 E.	26
91	Springfield, Mo	16	27	26	6	S. 61 W.	23
92	Omaha, Nebr	22	28	17	9	S. 53 E.	10
93	Valentine, Nebr	11	32	11	17	S. 16 W.	22
94	Sioux City Iowa	16	37	10	5	S. 13 E.	22
95	Pierre, S. Dak						
96	Huron, S. Dak	22	25	18	17	S. 18 E.	3
	Northern Slope.						
98	Havre, Mont	20	10	12	36	N. 67 W.	26
99	Miles City, Mont	17	17	15	24	.. .. W.	9
100	Helena, Mont	9	23	9	37	S. 63 W.	31
101	Rapid City, S. Dak	12	22	12	25	S. 52 W.	16
102	Cheyenne, Wyo	19	25	10	22	S. 63 W.	13
103	Lander, Wyo	21	18	12	24	N. 76 W.	12
105	North Platte, Nebr	19	23	19	10	S. 66 E.	10
	Middle Slope.						
106	Colorado Springs, Colo	39	12	7	9	N. 4 W.	27
107	Denver, Colo	21	22	6	27	S. 87 W.	21
108	Pikes Peak, Colo	21	12	17	23	N. 34 W.	11
109	Pueblo, Colo	28	14	18	19	N. 4 W.	14
110	Concordia, Kans	13	24	26	7	S. 60 E.	22
111	Dodge City, Kans	12	36	25	7	S. 37 E.	30
112	Wichita, Kans	15	28	29	4	S. 63 E.	28
113	Oklahoma, Okla	14	31	21	7	S. 39 E.	22
	Southern Slope.						
114	Abilene, Tex	14	29	28	5	S. 37 E.	28
115	Amarillo, Tex	12	41	8	10	S. 4 W.	29
	Southern Plateau.						
116	El Paso, Tex	14	18	39	7	S. 83 E.	32
117	Santa Fe, N. Mex	10	25	33	10	S. 57 E.	28
118	Tucson, Ariz	17	26	16	21	S. 29 W.	10
119	Yuma, Ariz	7	29	13	25	S. 29 W.	25
	Middle Plateau.						
121	Winnemucca, Nev	15	14	21	25	N. 76 W.	4
122	Salt Lake City, Utah	19	19	24	16	.. .. E.	8
	Northern Plateau.						
123	Baker City, Oreg	20	25	17	23	S. 50 W.	8
124	Idaho Falls, Idaho	21	27	11	19	S. 53 W.	10
125	Spokane, Wash	13	31	17	15	S. 6 E.	18
126	Walla Walla, Wash	9	31	14	19	S. 13 W.	23
	North Pacific Coast Region.						
127	Fort Canby, Wash	28	7	12	33	N. 45 W.	30
129	Port Angeles, Wash	4	20	6	39	S. 64 W.	17
130	Seattle, Wash	23	12	14	26	N. 47 W.	16
131	Tatoosh Island, Wash	5	31	9	34	S. 44 W.	36
132	Portland, Oreg	38	10	5	31	N. 43 W.	38
133	Roseburg, Oreg	33	7	9	22	N. 27 W.	29
	Middle Pacific Coast Region.						
134	Eureka, Cal	27	19	3	27	N. 72 W.	25
135	Red Bluff, Cal	27	20	14	13	N. 8 E.	7
136	Sacramento, Cal	1	47	6	23	S. 20 W.	49
137	San Francisco, Cal	0	45	0	41	S. 42 W.	61
	South Pacific Coast Region.						
138	Fresno, Cal	40	2	0	44	N. 49 W.	58
139	Los Angeles, Cal	9	10	9	37	S. 88 W.	28
140	San Diego, Cal	21	9	3	38	N. 71 W.	37

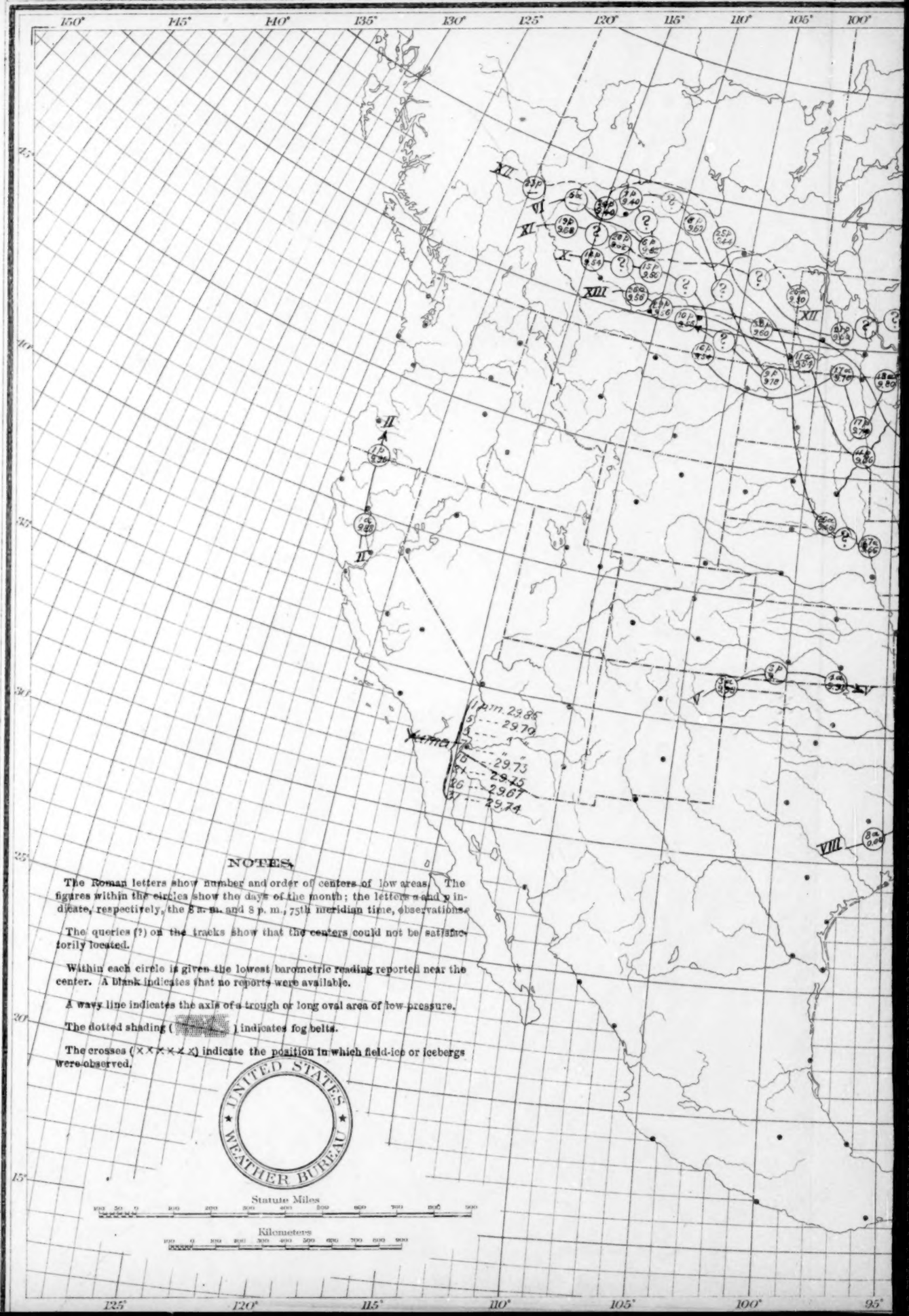
STATE WEATHER SERVICES.

The following table summarizes the more prominent climatological features given in the reports for July by the directors of the respective State Weather Services:

State.	Temperature.											Precipitation.					Director.
	Mean departure.	Maximum.	Date.	Station.	Minimum.	Date.	Station.	Monthly ranges. Greatest.	Station.	Least.	Station.	Mean departure.	Maximum. Amount.	Station.	Minimum. Amount.	Station.	
	°	°			°			°		°		*Inches.*	*Inches*		*Inches*		
Alabama	−5.7	103	4	Tuscaloosa	56	*	Maple Grove†	46	Newburg	17	Elba	+0.36	13.37	Rock Mills	1.59	Evergreen	F. P. Chaffee.
Alaska																	Not yet organized.
Arizona	+2.0	118	25	Parker	45	11	Fort Apache	54	Rye	37	Fort Bowie	−0.25	6.68	Lochiel	0.18	Signal	W. R. Burrows.
Arkansas	−1.8	108	1	Dallas	51	24	Keesees Ferry	54	Hot Springs	30	Winslow	0.00	10.52	Keesees Ferry	1.08	Malvern	F. H. Clarke.
California	+1.8	123	25	Volcano Springs	35	27	Boca	61	Turlock	18	Eureka	−0.03	1.31	Adin	0.00	Agnew†	J. A. Barwick.
Colorado	−1.0	108	*	Cheyenne Wells	28	*	Climax	65	Steamboat Springs	32	River Bend	+0.23	6.50	River Bend	0.10	Las Animas	F. H. Brandenburg.
Connecticut	+1.5	100	29	Middletown	45	*	Canton†	53	N. Grosvenor Dale	37	New London	−2.80	2.43	Waterbury	0.44	New London	J. Warren Smith.
Delaware		101	28	Wilmington	50	10	Newark	46	Newark†	39	Milford†		4.07	Millsboro	0.94	Wilmington	C. P. Cronk.
District of Columbia																	See Maryland.
Florida	−2.3	95	*	Archer†	64	28	New Smyrna	29	New Smyrna	15	Hypoluxo	+1.72	15.29	Moseley Hall	2.30	Key West	E. R. Demain.
Georgia	−3.0	100	30	Fleming	50	10	Leverett	41	Athens	24	Marshallville†	+4.66	15.86	Waynesboro	3.18	Adairsville	Park Morrill.
Idaho		107	22	Payette	32	26	Lake	69	Payette†	45	Garden Valley		1.54	Paris	0.01	Payette†	J. H. Smith.
Illinois	+0.4	107	25	Olney	41	21	Bloomington	65	Bloomington	30	Halliday	−1.64	3.84	Mattoon	T.	Fort Sheridan	John Craig.
Indiana	+0.3	104	19	Angola	41	22	Hammond	60	Hammond	23	Huntingburg	−1.56	3.67	Crawfordsville	0.17	Hammond	Prof. H. A. Huston.
Indian Territory																	See Oklahoma.
Iowa	+2.3	110	26	Logan	39	14	Galva	67	Galva	38	Fort Madison	−3.67	3.50	Centerville	T.	Independence†	J. G. Sage.
Kansas	−0.3	116	28	Ulysses	42	21	Morland	68	Ulysses	38	Kansas City	−1.91	5.08	Coldwater	T.	Abilene	T. B. Jennings.
Kentucky	−1.8	105	31	Carrollton	43	8	Sandy Hook	59	Carrollton	25	Eddyville	−1.82	5.38	Marrowbone	0.17	Louisa	Frank Burke.
Louisiana	−2.5	107	4	Girard	55	*	Girard	52	Girard	28	Houma	−0.16	12.71	Sugar Ex. Station	0.92	Cheneyville	R. E. Kerkam.
Maine	+0.4	100	20	Lewiston	42	27	Farmington	58	Farmington	44	Bar Harbor†	−1.82	4.70	Cornish	1.21	Eastport	J. Warren Smith.
Maryland	0.0	100	*	College Park†	34	9	Sunnyside	58	Sunnyside	32	Princess Anne	−1.40	7.19	Mardela Springs	0.56	La Plata	C. P. Cronk.
Massachusetts	+2.0	106	20	Chestnut Hill	40	9	Ludlow	57	Ludlow†	26	Woods Holl	−1.60	5.65	North Billerica	0.29	Nantucket	J. Warren Smith.
Michigan	+0.4	102	*	Berlin†	35	*	Grayling†	65	Grayling	40	Grand Haven	−1.69	4.69	Vandalia	0.25	Paris†	E. A. Evans.
Minnesota	+4.6	108	27	Wabasha	39	31	Marfield	64	Milan	38	Belle Plaine	−3.11	1.67	Marfield	T.	Blooming Prairie	E. A. Beals.
Mississippi	−2.5	107	*	Vaiden†	53	10	Clarksdale	46	Clarksdale†	30	Biloxi†	+1.99	8.98	Bay St. Louis	1.84	Okalona	R. J. Hyatt.
Missouri	−0.8	109	27	Harrisonville	42	23	Grovedale	63	Grovedale	34	Edge Hill	−1.42	8.15	Appleton City	0.15	Tindall	A. E. Hackett.
Montana	−1.0	112	24	Glendive	32	*	Hogan†	67	Hogan	44	Virginia City	−0.63	3.66	Pony	0.00	Musselshell	J. M. Sherier.
Nebraska	+1.9	114	26	Santee Agency†	43	28	Fort Robinson	70	Creighton	40	Mullen†	−2.19	2.96	Fort Robinson	0.10	Imperial	G. A. Loveland.
Nevada	−1.0	108	7	Downeyville	32	27	Stofiel	63	Stofiel†	32	Belleville	+0.54	3.10	Empire Ranch	0.00	St. Clair	Prof. C. W. Friend.
New Hampshire	+0.3	99	28	North Conway	38	*	Berlin Mills†	55	Strafford	39	Lancaster	−0.89	3.68	Newton†	1.69	Alstead	J. Warren Smith.
New Jersey	+1.2	106	29	Somerville	44	10	Franklinville	57	Toms River†	31	Atlantic City	−2.66	5.00	Bayonne	0.15	Atlantic City	E. W. McGann.
New Mexico		104	19	Los Lunas	38	26	Halls Peak	59	Taos	35	Santa Fe		3.18	Halls Peak	T.	Los Lunas	H. B. Hersey.
New York	+1.3	102	20	Pactoryville	37	9	South Kortright	61	Factoryville	38	New York†	−0.90	6.00	Fort Niagara	0.63	Setauket	Prof. E. A. Fuertes.
North Carolina	−1.6	99	13	Saxon	42	11	Blowing Rock	48	Saxon	24	Southport	+0.63	11.61	Washington	1.18	Saxon	Dr. H. B. Battle.
North Dakota	+3.1	107	*	Power†	38	30	Napoleon	66	Napoleon†	44	Devils Lake	−2.23	2.58	Ashley	T.	Oakdale	B. H. Bronson.
Ohio	+1.3	105	*	Hedges	36	9	Orangeville	65	Green Hill	38	Frankfort	−1.66	5.16	Tiffins	0.05	Bethany	L. N. Bonham.
Oklahoma	+2.8	114	3	Anadarko	49	23	Purcell	61	Anadarko†	40	Cloud Chief	−2.82	3.30	Eufaula	0.33	Stillwater	J. I. Widmeyer.
Oregon	+1.3	102	23	Canyon City†	28	28	Burns	64	Glenora†	21	Bandon	−0.47	1.12	Ashland	0.00	Cornelius†	Hon. H. Hayes.
Pennsylvania	+3.2	103	19	Huntingdon	31	9	Lock Haven	72	Lock Haven	36	Drifton	−2.21	5.96	Pottstown	0.53	Easton	W. P. Latham.
Rhode Island	+2.8	97	28	Providence a	49	8	Kingston	45	Providence a	27	Block Island	−1.59	3.74	Pawtucket	0.22	Block Island	J. Warren Smith.
South Carolina	−1.9	100	3	Greenwood	55	11	Batesburg†	42	Greenwood	27	Charleston†	+2.27	17.31	Hardeeville	3.59	Yorkville	J. W. Bauer.
South Dakota	+5.0	112	*	Frankfort†	37	*	Castlewood†	69	Castlewood†	48	Fort Meade†	−1.98	4.13	Silver City	0.08	De Smet	S. W. Glenn.
Tennessee	+1.1	103	1	Covington b	48	8	Byrdstown	45	Covington b	28	Rogersville	+0.03	8.42	Palmetto	1.47	Rockwood	J. B. Marbury.
Texas	−1.3	115	3	Panter	42	30	Hartley	60	Hartley†	23	Bellville	+0.47	7.37	Beaumont	0.00	Roby	D. D. Bryan.
Utah		109	*	St. George	26	7	Scofield	70	Scofield	40	Castle Gate		3.59	Singletree	T.	Lake Station	G. N. Salisbury.
Vermont	+0.2	97	*	Brattleboro†	40	9	Simonsville	53	Simonsville	36	Burlington	−2.78	5.51	Enosburg Falls	1.57	Burlington	J. Warren Smith.
Virginia		102	*	Richmond	39	12	Hot Springs	52	Fredericksburg†	31	Hampton		8.10	Cape Charles	1.41	Christiansburg	Dr. E. A. Craighill.
Washington	−0.3	106	23	Sulphur	34	1	Waterville†	62	Waterville	30	Tatoosh Island	−0.46	1.70	Neah Bay	0.00	Fort Spokane†	H. F. Alciatore.
West Virginia		100	*	New Cumberland†	36	9	Davis	60	Nuttallburg	38	Weston†		4.84	Elkhorn	0.50	Nuttalburg	H. W. Richardson.
Wisconsin		107	26	Prairie Du Chien	34	20	Barron	68	Monomenie†	40	Beaver Dam	−0.97	2.40	Barron	T.	Lancaster†	S. E. Emery.
Wyoming	−2.0	98	14	Labarge	35	*	Arland	64	Labarge	43	Fort Yellowstone	+0.58	3.25	Cheyenne	0.38	Fort Washakie	E. M. Ravenscraft.

* Two or more days.

† At other points in the State.



NOTES.

The Roman letters show number and order of centers of low areas. The figures within the circles show the days of the month; the letters a and p indicate, respectively, the 8 a. m. and 8 p. m., 75th meridian time, observations.

The queries (?) on the tracks show that the centers could not be satisfactorily located.

Within each circle is given the lowest barometric reading reported near the center. A blank indicates that no reports were available.

A wavy line indicates the axis of a trough or long oval area of low pressure.

The dotted shading ( ) indicates fog belts.

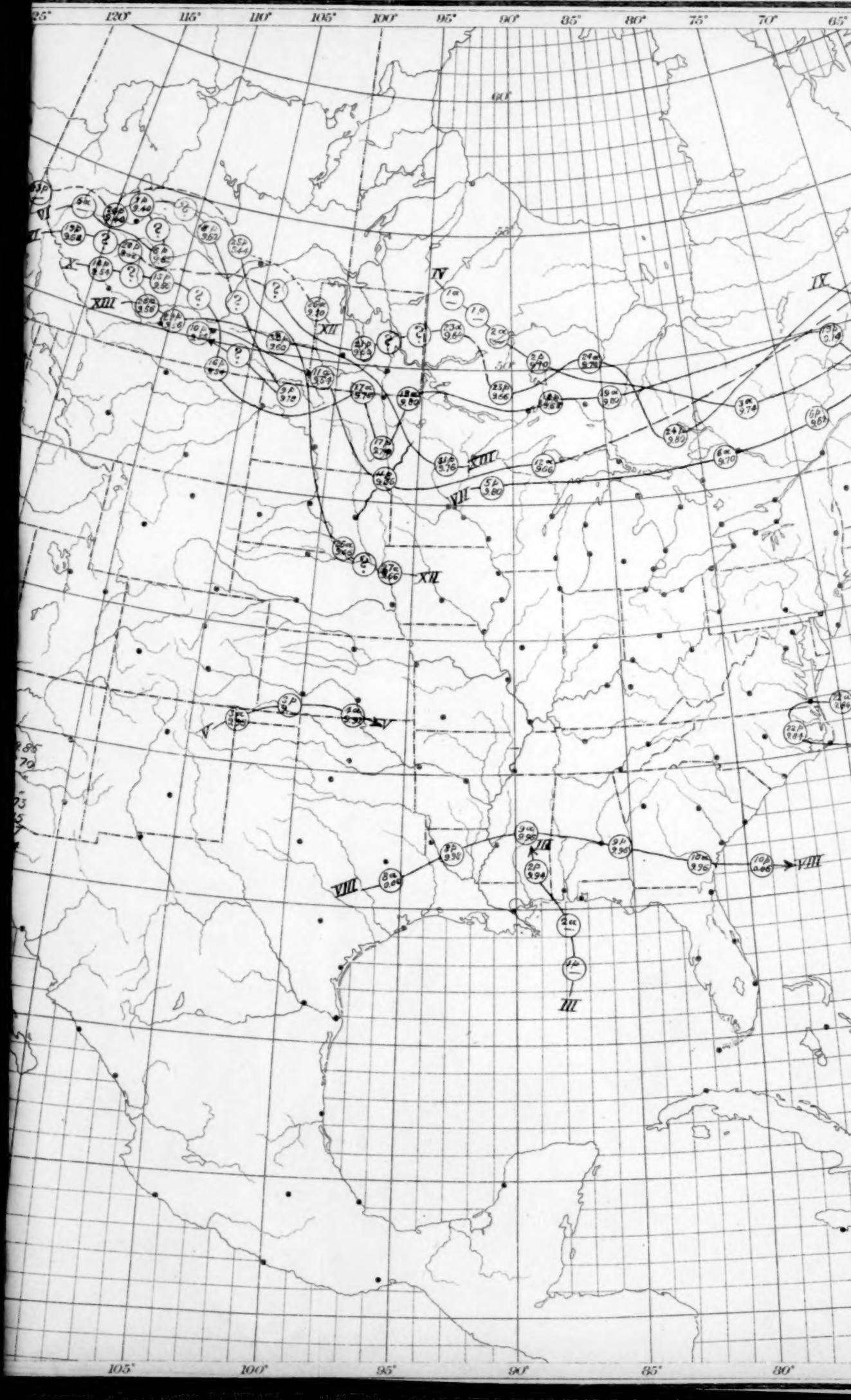
The crosses (× × × × × ×) indicate the position in which field-ice or icebergs were observed.

UNITED STATES WEATHER BUREAU

Statute Miles

Kilometers

Chart I. Tracks of Centers of Low Areas. July, 1894.



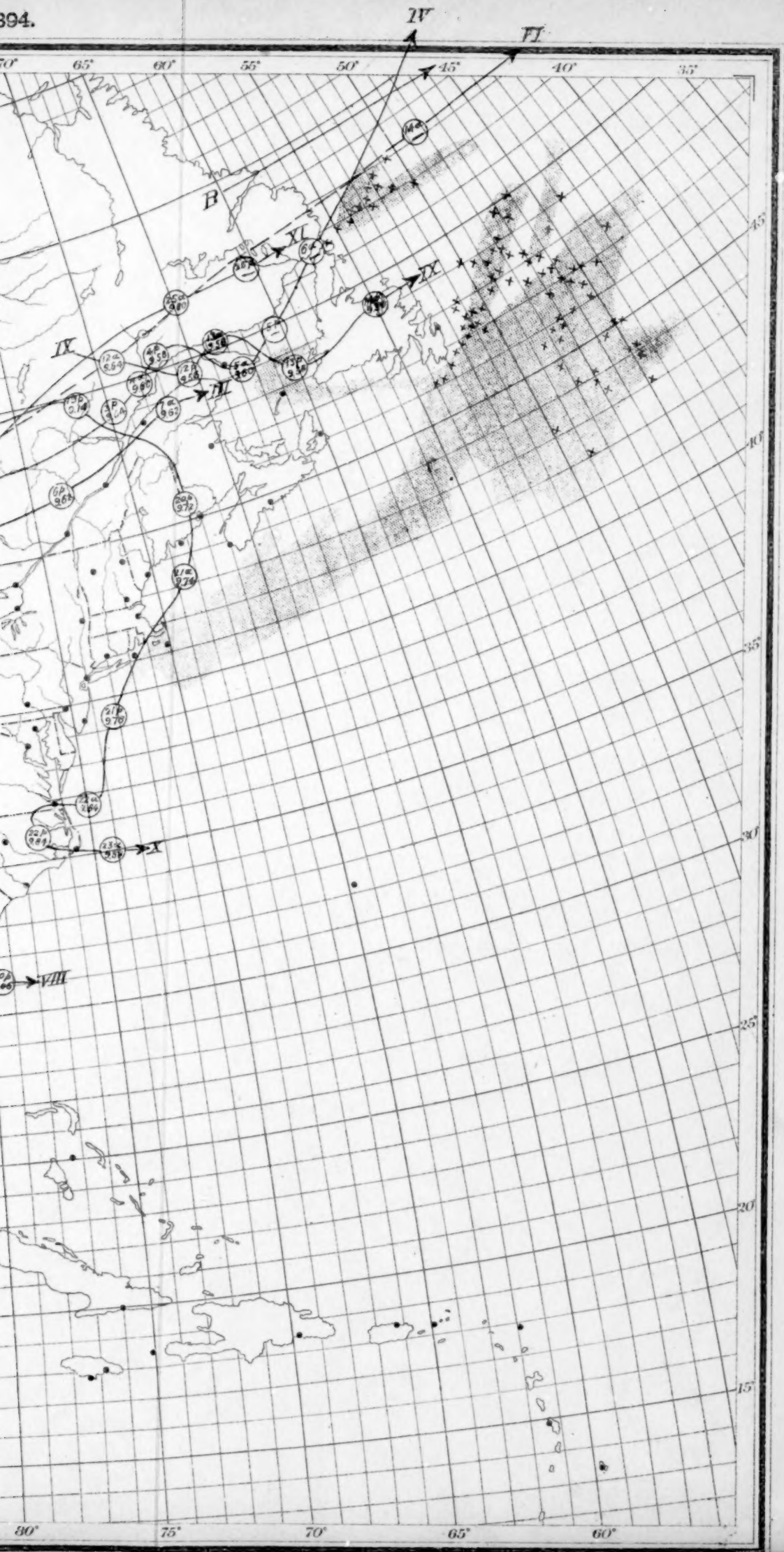

IV
VI
B
XI
IX
IX
III
X
VIII
70°
65°
60°
55°
50°
45°
40°
35°
45°
40°
35°
30°
25°
20°
15°
80°
75°
70°
65°
60°

Chart F. Anchors, Anthems, and Responses. Whole, July, 1924

Chart II. Isobars, Isotherms, and Resultant Winds. July, 1894.

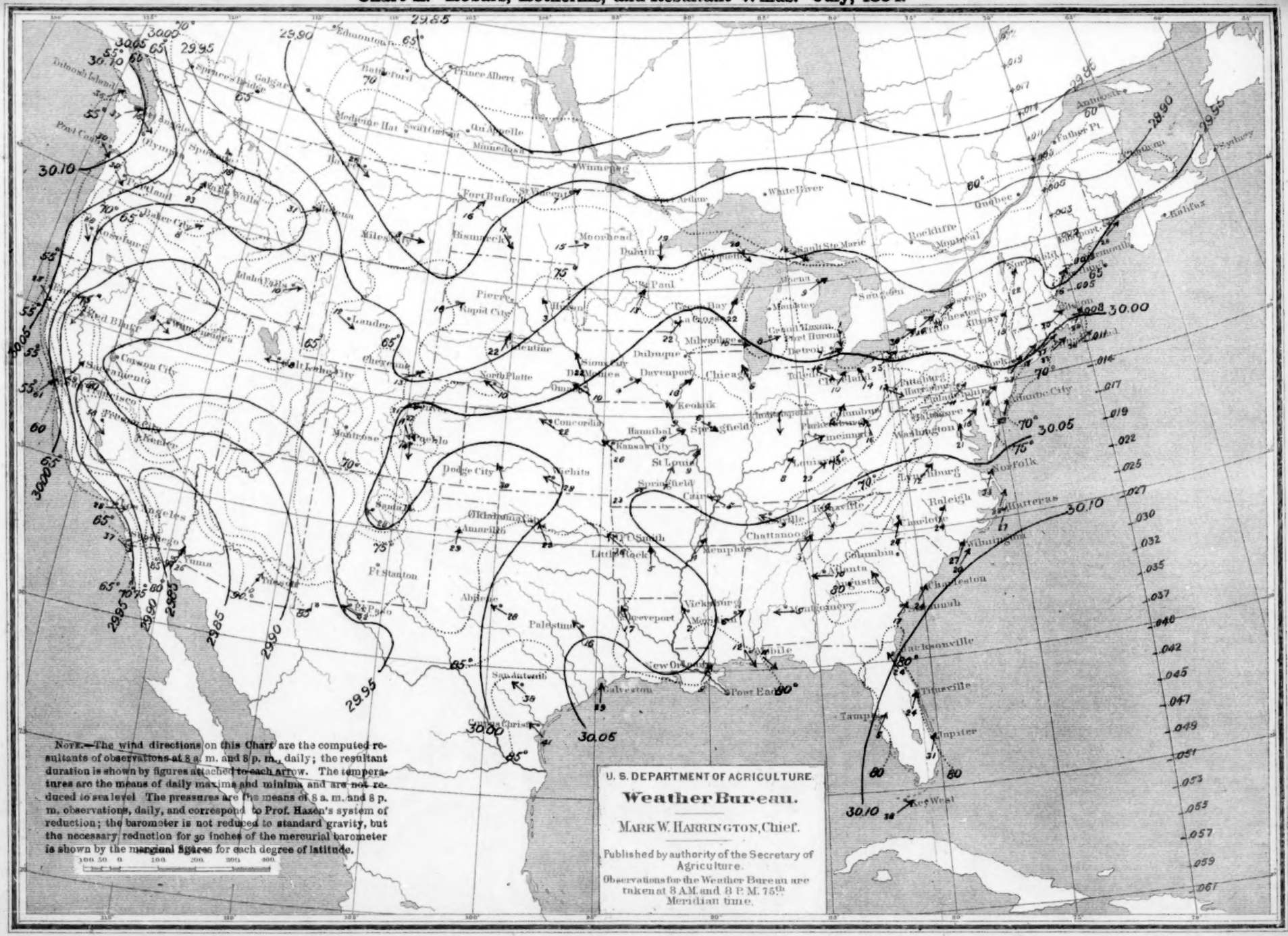
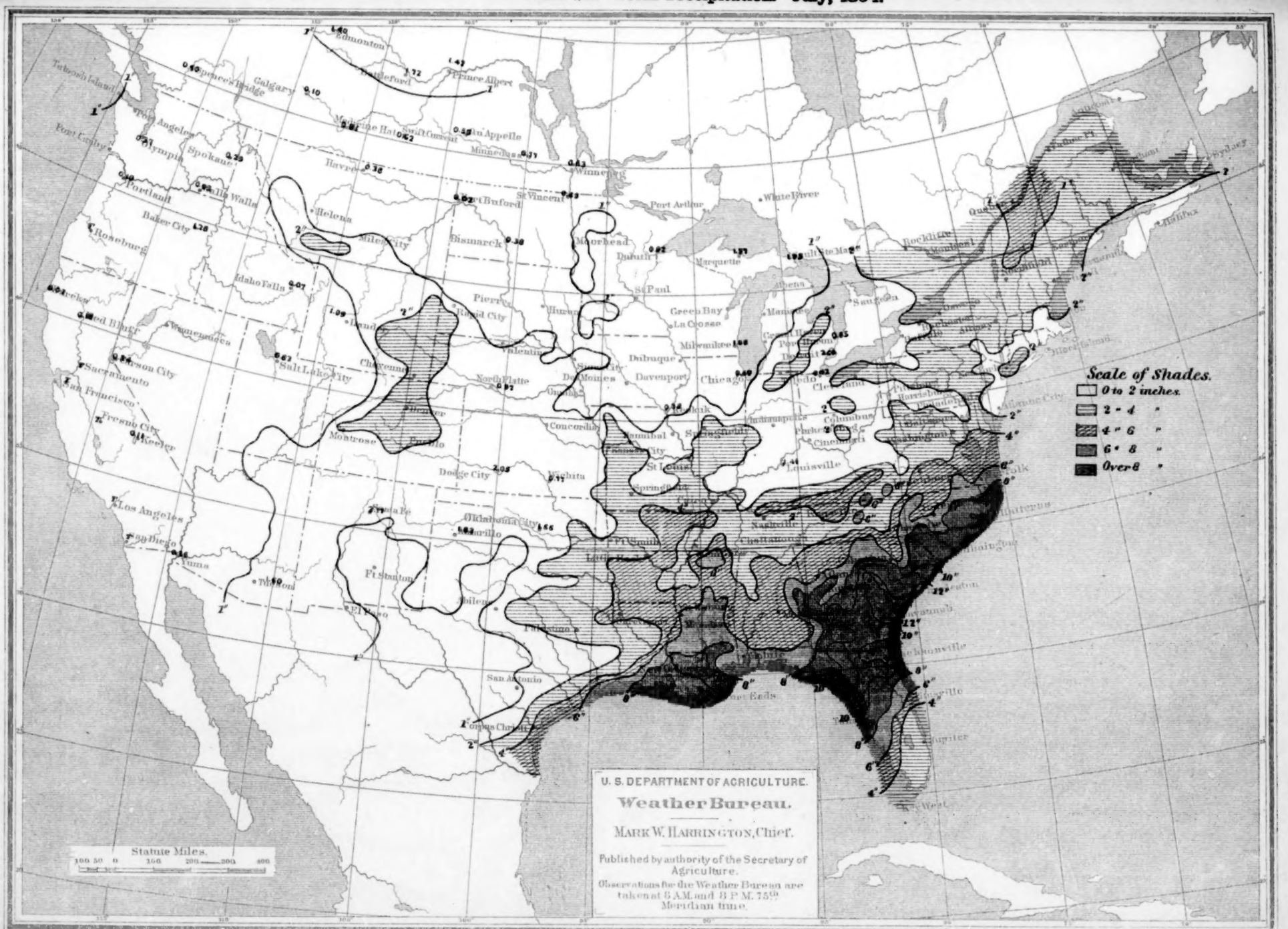

Note.—The wind directions on this Chart are the computed resultants of observations at 8 a. m. and 8 p. m., daily; the resultant duration is shown by figures attached to each arrow. The temperatures are the means of daily maxima and minima, and are not reduced to sea level. The pressures are the means of 8 a. m. and 8 p. m. observations, daily, and correspond to Prof. Haxen's system of reduction; the barometer is not reduced to standard gravity, but the necessary reduction for 30 inches of the mercurial barometer is shown by the marginal figures for each degree of latitude.
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A.M. and 8 P.M. 75th Meridian time.

Chart III. Total Precipitation - July 1894

Chart III. Total Precipitation. July, 1894.


Scale of Shades.
0 to 2 inches.
2 - 4 "
4 " 6 "
6 " 8 "
Over 8 "
Statute Miles.
100 50 0 100 200 300 400
U. S. DEPARTMENT OF AGRICULTURE.
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Sheet IV. Results of Chemical Analysis, July 1894
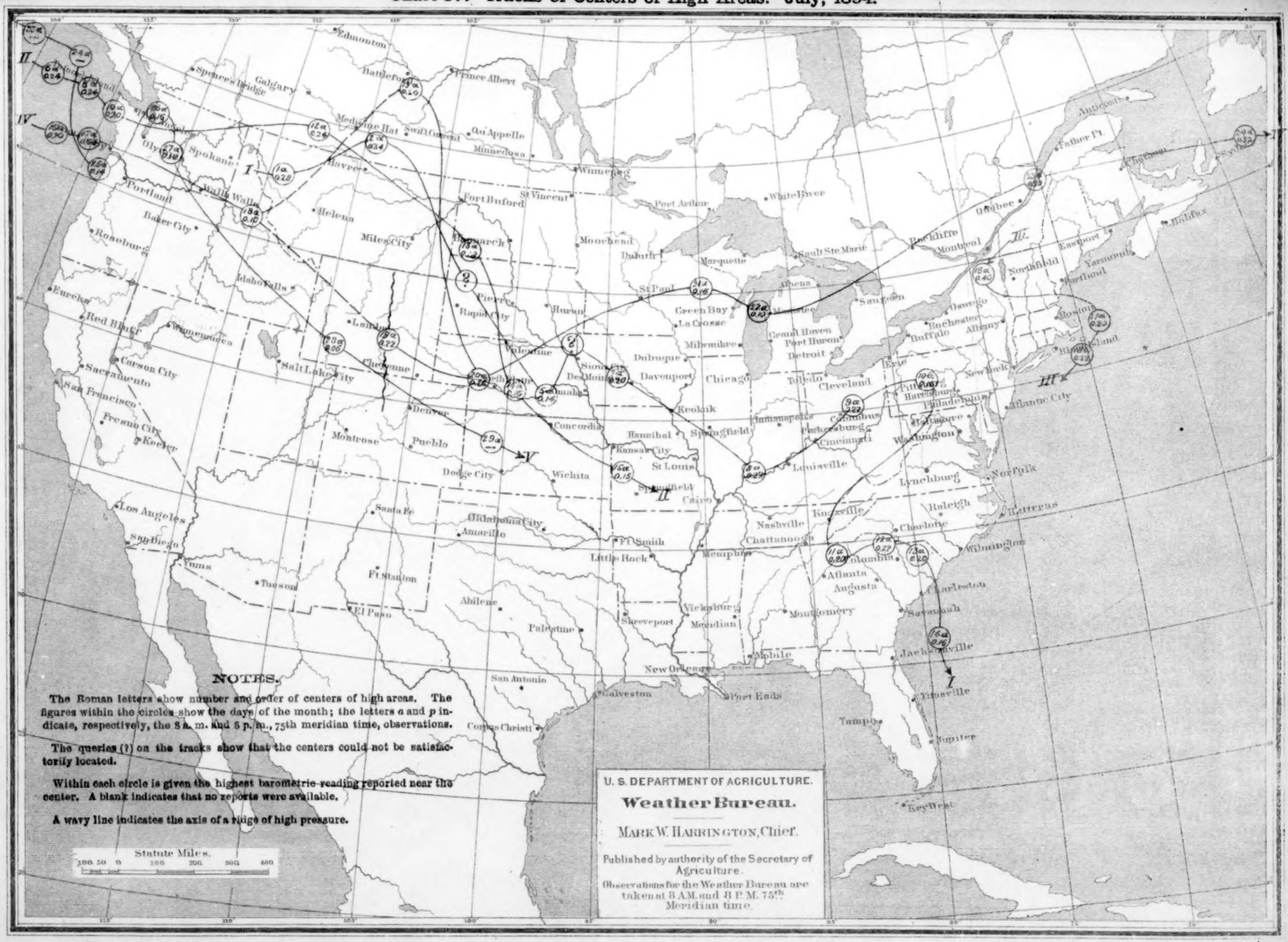
Chart IV. Tracks of Centers of High Areas. July, 1894.